

New records and new species of Macratriinae from the Papuan Region (Coleoptera: Anthicidae), 2

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Abstract: Descriptions of eight species of *Macratria* Newman, 1838 new to science are given, namely *M. ayamaru* sp. nov., *M. berdnikovi* sp. nov., *M. citak* sp. nov., *M. eparaksts* sp. nov., *M. marind* sp. nov., *M. patani* sp. nov., *M. obiensis* sp. nov., and *M. sahu* sp. nov. One new synonym is proposed: *Macratria subguttata* Pascoe, 1860 = *M. giloloana* Champion, 1916 syn. nov. Additional information on distribution, ecology and behaviour of several known species is given. Updated biogeographical data on Macratriinae of the Papuan Region and Wallacea zone are presented. Provisional areas of Anthicidae endemism are defined for Wallacea and the Papuan Region.

Key words: *Macratria*, Papuan Region, Wallacea, taxonomy, biogeography, areas of endemism, behaviour, ecology.

Introduction

The Indo-Australian transitional zone region (Wallacea and the Papuan Region) is extraordinary rich for Macratriinae. Previously 120 species have been recorded from this region (Telnov 2011a, 2012), of which 118 are believed endemic species and only two are shared with neighbouring islands of the Oriental Region. Of them, 108 species of *Macratria* Newman, 1838 were described from this region very recently (Telnov 2011a, 2012). This work is based largely on recent *Macratria* material from North Moluccas and New Guinea received in 2015-2016.

The following eight new species from North Moluccas and Indonesian New Guinea are described and illustrated: *Macratria ayamaru* sp. nov. (Doberai Peninsula), *M. berdnikovi* sp. nov., *M. patani* sp. nov. (both from SE Halmahera), *M. citak* sp. nov., *M. eparaksts* sp. nov., *M. marind* sp. nov. (all from South New Guinea), *M. obiensis* sp. nov. (Obi Islands), and *M. sahu* sp. nov. (NW Halmahera). One new synonym is proposed. New records from the region of the Indo-Australian transition zone are given for eight species. An attempt is made to define provisional areas of endemism for the Papuan and Wallacean Anthicidae on base of earlier works by the author.

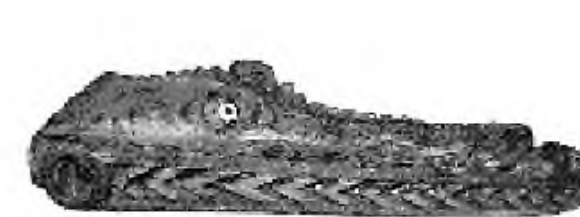
Materials and methods

All species are listed alphabetically as a phy-

logenetic arrangement is not yet possible. For type specimens all label text is reproduced exactly, with no corrections or additions. All labels are printed. Each specimen is supplemented with additional label “MACRATRIA [species name, author, year or “sp. nov.” respectively] det. D.Telnov, [year]. Type specimens of new species are also provided with an additional label on red paper “HOLOTYPUS” or “PARATYPUS”, respectively. Holotypes of newly described species are placed in the collection of Naturkundemuseum Erfurt.

The specimens under study are all mounted on paper cards. When available, at least 3 males and 3 females from each locality were dissected and their genital organs were investigated. Within large series of specimens, merely random dissection has been performed. Genital organs were mounted on microscopic slides and fixed in Apáthy’s gum-syrup to make the objects permanent. For morphological studies, a Leica S6D binocular stereomicroscope with attached external Canon EOS 450D SLR camera was used. Genital organs were studied and photographed using a Meji optical microscope with attached external digital camera for imaging. CombineZP software was used for image stacking. Last visible ventrites (largest terminal sternite and tergite) discussed by each species’ description are the morphological sternite & tergite VII.

The “Papuan Region” is a zoogeographic term used in the sense of Gressitt (1982), Beehler et al. (1986), Riedel (2002), and Telnov (2011a). This area is defined as the Sahul continental shelf islands with the Pacific Ocean north and east of New



Guinea and Torres Strait south of it. In the west, chains of Moluccan Islands (North, Central and South Moluccas) with high percentage of Papuan fauna elements also considered part of the Papuan Region with Weber's Line used as western boundary of the region as a line of fauna balance. In parallel, these islands are also a part of Wallacea.

The maps are prepared using ArcGIS 9.0 software.

Abbreviations used in the text:

NME – Naturkundemuseum Erfurt, Germany;
DTC – Collection Dmitry Telnov, Rīga, Latvia;
vill. – village.

Taxonomic part

***Macratria capreolus* Telnov, 2011**

New records: 44♂♀ DTC & NME: INDONESIA E, North Moluccas, Halmahera N, Galela area, river Kokopola at the bridge, 1°54'20"N, 127°49'41"E, 15 m, 01.VII.2013, lowland river, leg. D.Telnov; 22♂♀ DTC & NME: INDONESIA E, North Moluccas, central Halmahera, river between lake Sagea and Gemaf vill., 0°28'37"N, 128°03'11"E, 15 m, lowland river, 07.VII.2013, leg. D.Telnov; 1♀ & 1♂ DTC: INDONESIA E, North Moluccas, Obi Islands, Obira Is., W part, Kawasi vill. 5-6 km SE, North of Akelamo river mouth, 1°35'51"S, 127°25'04"E, 15.XII.2013, gardens, secondary lowland rainforest & swamp, leg. L.Wagner; 24♂♀ DTC & NME: INDONESIA E, North Moluccas, Obi Islands, Obira Is., S part, Wayaloar vill. NE ~4 km, 1°41'01"S, 127°36'13"E, 16.XII.2013, rainforest stream bank, on low strata vegetation, leg. L.Wagner; 6♂♀ DTC & NME: INDONESIA E, North Moluccas, Obi Islands, Obira Is., S part, Wayaloar vill. W, Wayaloar River, 1°42'42"S, 127°37'01"E, 17.XII.2013, riverine lowland rainforest, leg. L.Wagner; 20♂♀ DTC & NME: INDONESIA E, North Moluccas, central Halmahera, creek NE Kobe vill., 0°28'41"N, 127°53'53"E, 10 m, creek, 07.VII.2013, leg. D.Telnov; 5♂ & 1♀ DTC: INDONESIA E, North Moluccas, Halmahera SE, Patani W, Sibenpopo vill. E, 0°20'31"N, 128°32'02"E, 15 m, sago swamp & stream, 10.VII.2013, leg. D.Telnov; 6♂ DTC: INDONESIA E, North Moluccas, Halmahera NW, River Alce Diri near Jailolo, 01°06'28"N, 127°28'49"E, 15-17 m, 16.VII.2013, lowland river, leg. L.Wagner.

Note: Specimens from the Obi Islands are all missing the transverse band of white setae. In the Obi Islands specimen's elytra are covered with pale yellow, dense pubescence; the pubescence not getting denser postbasally and not building a setal band.

Ecology: Specimens were observed on low and

medium strata vegetation (up to 2 m height) on the upperside and underside of leaves of *Piper* sp., *Saccharum* sp. (Fig. 48) and various young trees and bushes. Specimens were recorded from near water (riverbank in Galela and in central Halmahera near Gemaf, creek near Kobe vill. and at Sibenpopo vill., roadside near Sagea saline lake) or on a distance from it. Specimens were observed at midday in open sun in open or closed habitats. This species is reported at low altitudes from sea level up to 50 m.

Behaviour: It appears to be a very agile species, running quickly and flying actively from leaf to leaf when disturbed. When not disturbed, specimens were observed motionless or walking slowly and quickly move their palpi - "sniffing" the surface.

Distribution: These records are the first records since the original species description. This species was previously not recorded from Obi Islands, but is now distributed all over North Moluccas (Map 2: empty circles).

***Macratria grekei* Telnov, 2011**

New records: 4♂♀ DTC: INDONESIA, Papua, North Asmat area, 5°20'39"S, 139°21'18"E, left bank of River Eilanden S of Siret and Brazza river junction (left riverbank), XII.2015, leg. L.Wagner.

Ecology: Specimens were sampled from *Saccharum* sp. riverside vegetation in open conditions (riverside) in open sun at hot midday time.

Distribution: This species inhabits vast areas in the South and West of New Guinea (Map 3: filled circles).

***Macratria hatamensis* Telnov, 2011**

New records: 28♂♀ DTC & NME: INDONESIA E, W New Guinea, Doberai Peninsula, Arfak mts, Anggi Gigi Lake S env., Uper vill. 2-2,5 km NNE, 1°17'10"S, 133°54'18"E, 09.IX.2015, 1900-2480 m, primary mid montane rainforest, leg. D.Telnov; 60♂♀ DTC & NME: INDONESIA E, W New Guinea, Doberai Peninsula, Arfak mts, montane ridge between lake Gita & Gigi (Anggi Lakes), 1°23'33"S, 133°55'02"E (2360 m) via 1°22'40"S, 133°55'56"E (2280 m) to Pamaha vill. 1°23'14"S, 133°55'11"E (1960 m), 10.IX.2015, 2200 m, primary mid montane rainforest & subalpine vegetation, leg. D.Telnov.

Note: Females of this species are either entirely brown as the paratype (see Telnov 2011a) or with black-brown fore-body.

Ecology: This species occurs in mid-montane rainforests and is presently known from altitudes diapason 1900-2480 m. Specimens were observed in very damp cloud conditions on low strata vegetation (up to 1.5 m height) in shady or dark condi-



tions. Specimens were observed both in very dark closed-canopy primary rainforest as well as in the partially open zone of low trees on montane ridges (Figs 46-47).

Behaviour: Specimens are slow and not agile even at midday (midday temperatures at places of observation about 22-25 °C, midnight temperatures 5-10 °C). Beetles sat motionless on the upper sides of leaves when not disturbed. When disturbed they did not fly away like other previously observed congeners, but fell down to the ground instead. When falling, the beetle bends its head and pronotum forward almost perpendicular to the body) and folds its legs. While on the ground, they remain motionless for some time. This kind of behaviour is very peculiar and has not been reported for any other *Macratria*. I consider it adaptive to the specific (cool) climate of mid-montane rainforests.

Distribution: These are the first records since the original species description. This species appears to be limited to the Arfak Mountains of New Guinea's Doberai Peninsula (Map 1: empty circles).

***Macratria pygmaea halmaherica* Telnov, 2011**

New records: 14♂♀ DTC & NME: INDONESIA E, North Moluccas, Halmahera N, Galela area, river Kokopola at the bridge, 1°54'20"N, 127°49'41"E, 15 m, 01.VII.2013, lowland river, leg. D.Telnov; 5♂ DTC: INDONESIA E, North Moluccas, central Halmahera, lake Sagea near Sagea vill., 0°28'43"N, 128°04'31"E, 5 m, 07.VII.2013, roadside vegetation, leg. D.Telnov.

Ecology: Specimens were observed on low and medium strata vegetation (up to 2 m height) on the upperside and underside of *Saccharum* sp. (Fig. 48) leaves. Specimens were recorded from near water (riverbank in Galela). Specimens were observed during the hot midday in the open sun (Fig. 51). This species is reported from low altitudes up to 150 m.

Behaviour: Agile species, walking quickly and flying actively from leaf to leaf when disturbed. When not disturbed, specimens remained motionless.

Distribution: These are the first records since the original species description (Map 3: empty circles).

***Macratria riparia* Telnov, 2012**

Ecology: Telnov (2012: 438) provided ecological information on this species but its connection with any particular plant species remained unknown until now. *Cryptocoryne ciliata* (Roxb.) Schott is identified as a plant on which leaves adults of *M. riparia* are so abundant.

***Macratria ronaldi* Telnov, 2011**

New records: 1♂ DTC: INDONESIA, Papua, Korowai area, Yaniruma env., 5°24'53"S, 139°49'01"E, 25.VI.2016, muddy riverside, on *Metroxylon sagu*, leg. L.Wagner.

Ecology: A specimen was sampled from a Sago Palm leaf.

Distribution: This represents the first record since the original species description. This species seems to inhabit vast areas in the South of New Guinea from Bird's Neck isthmus in the West toward at least Korowai area in the East (Map 5: empty circle).

***Macratria rotundiceps* Telnov, 2011**

New records: 1♂ & 1♀ DTC: INDONESIA E, W New Guinea, Doberai Peninsula, Arfak mts, Syoubri vill., 1°07'16S, 133°54'34"E, 1570-2100 m, primary lower montane rainforest, 11-12.IX.2015, leg. D.Telnov.

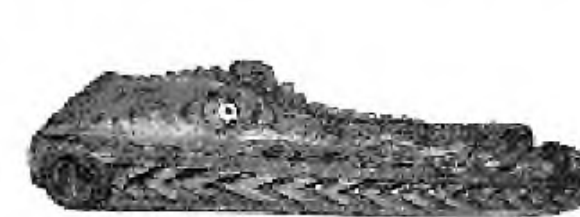
Ecology: Specimens were observed on low strata vegetation (about 1.5 m height) in a closed canopy primary mid-montane rainforest. Both sampled specimens were observed on the same leaf of a young tree (Fig. 49).

Distribution: This is the first record since the original species description. This species appears to be limited to the Arfak Mountains of New Guinea's Doberai Peninsula (Map 1: filled circles).

***Macratria subguttata* Pascoe, 1860**

= *Macratria giloloana* Champion, 1916 **syn. nov.**

New records: 1♂ & 1♀ DTC: INDONESIA E, North Moluccas, Tidore Is., caldera of Sabale volcano, 0°43'18"N, 127°26'04"E, ~400-410 m, 29.VI.2013, secondary lowland rainforest, low strata vegetation [Taro plant], leg. D.Telnov; 10♂♀ DTC & NME: INDONESIA E, North Moluccas, Halmahera N, Galela area, river Kokopola at the bridge, 1°54'20"N, 127°49'41"E, 15 m, 01.VII.2013, lowland river, leg. D.Telnov; 36♂♀ DTC & NME: INDONESIA E, North Moluccas, Halmahera N, Galela area, Lake Makete at Makete vill., 1°50'17"N, 127°48'32"E, 20 m, 01.VII.2013, lakeside, on *Alocasia macrorrhizos*, leg. D.Telnov; 4♂♀ DTS & NME: INDONESIA E, North Moluccas, central Halmahera, river between lake Sagea and Gemaf vill., 0°28'37"N, 128°03'11"E, 15 m, lowland river, 07.VII.2013, leg. D.Telnov; 8♂♀ DTC: INDONESIA E, North Moluccas, central Halmahera, creek NE Kobe vill., 0°28'41"N, 127°53'53"E, 10 m, creek, 07.VII.2013, leg. D.Telnov; 11♂♀ DTC: INDONESIA E, North Moluccas, Halmahera SE, Patani W, between the jetty & Patani, 0°18'10"N, 128°39'38"E, 15-50 m, secondary lowland rainforest, 10.VII.2013, leg. D.Telnov; 19♂♀ DTC & NME: INDONESIA E, North Moluccas, Halmahera NW, distr. Gamlamo, subdistr. Sahu Timur, 1°07'54"N,



127°28'26"E, 15-20 m, 16.VII.2013, lowland swamp, leg. L.Wagner; 6♂ DTC: INDONESIA E, North Moluccas, Halmahera NW, River Alce Diri near Jailolo, 01°06'28"N, 127°28'49"E, 15-17 m, 16.VII.2013, lowland river, leg. L.Wagner.

New synonym: *Macratria giloloana* Champion, 1916 (Halmahera Island) was placed as junior synonym of *M. coniceps* Pic, 1901 (Aru Islands) by Telnov (2011a: 128) primarily because of the head being slightly constricted in the holotype (♂) of *M. giloloana* making the head outline similar to that of *M. coniceps*. Later one was described from 5 female specimens. After examining large series of specimens from W and N Halmahera and Tidore and comparing them with *M. subguttata* Pascoe (Bacan, Halmahera, Ternate) I came to the conclusion that the male characters of these specimens are identical with those of the holotype of *M. giloloana*, and the head posterior to eyes is inconspicuously constricted in some specimens and rounded in most specimens. Therefore, I conclude all these specimens are conspecific.

Morphology: The apices of the antlers-like appendages therefore look obtusely bilobate (Fig. 1) [not visible on figures 74 & 447 in Telnov (2011a)]. The antlers-like appendages bear a group of 2-3 delicate, extraordinary long setae arising from near the place of the protruding insertion.

Ecology: Specimens were observed on low and medium strata vegetation (up to 2 m height) on the upperside (rarely also on the underside) of leaves of various young trees, *Saccharum* sp. and on Giant Taro (*Alocasia macrorrhizos*) and other Taro



Figure 1. *Macratria subguttata* Pascoe, 1860, ♂ from Sabale caldera, Tidore Island: distal part of last visible sternite in ventral view. Note the bilobate apices of the appendages (Important! Pubescence of the appendages is removed on this photograph to ensure better view).

(Figs 48, 50, 52). Specimens were recorded from near water (lakeside and riverbank in Galela and in central Halmahera near Gemaf, a lowland swamp in Sahu Timur, Halmahera; stream in caldera on Tidore). Specimens were observed at hot midday, both in disturbed and semi-open habitats (lakeside, riverbank, swamp) and in closed canopy habitats (old secondary lowland rainforest). This species is reported at altitudes from sea level up to 410 m.

Behaviour: A very agile species, running quickly and flying actively from leaf to leaf when disturbed. When not disturbed, specimens were observed motionless or walking slowly and quickly moving their palpi - "sniffing" the surface.

Distribution: This is a widespread species across North Moluccas, not recorded on Obi Islands (Map 3: filled circles).

Distribution & note *M. coniceps*: This species remains known only from the Aru Islands (Tanahbesar Island, exact locality unknown) and male characters of this species are unknown.

Descriptions of new taxa

***Macratria ayamaru* sp. nov.** (Figs 2-5, plate 97 figs 1-2, map 6: rhomboid)

<http://zoobank.org/0E384018-D116-4642-8D43-5C08B018862A>

Holotype ♂ NME: INDONESIA E, W New Guinea, Doberai Peninsula, Ayamaru vill. 2,5-2,1 km NW, forest & Framu creek, 1°15'30S, 132°11'13"E, ~310-265 m, 02.IX.2015, primary semidry lowland rainforest on limestone, leg. D.Telnov.

Paratype 1♂ DTC: same label as in holotype.

This species belongs to the *M. beccarii* species-group (see Telnov 2011a for group definition).

Derivatio nominis: Toponymic. This species is named after the Ayamaru area of the Doberai Peninsula, New Guinea. Noun in apposition, invariable. Measurements: Holotype male, total body length 5.24 mm, maximum combined width across base of elytra 1.2 mm; head (neck excluded) 0.9 mm long, across eyes 0.8 mm broad, pronotum 1.35 mm long, maximum width 0.85 mm, elytra 2.9 mm long, across base 1.2 mm wide. Paratype male: total body length 5.1 mm, across base 1.25 mm wide; head 0.9 mm long, across eyes 0.75 mm broad, pronotum 1.3 mm long, maximum width 0.9 mm, elytra 2.9 mm long, across base 1.25 mm wide.

Description: Fore-body dorsally black or black-brown, elytra brown. Head reddish prior to eyes with yellow mouthparts. Antennomeres 1-8 yellow, 9-11 black. Pronotum and elytra with inconspicuous

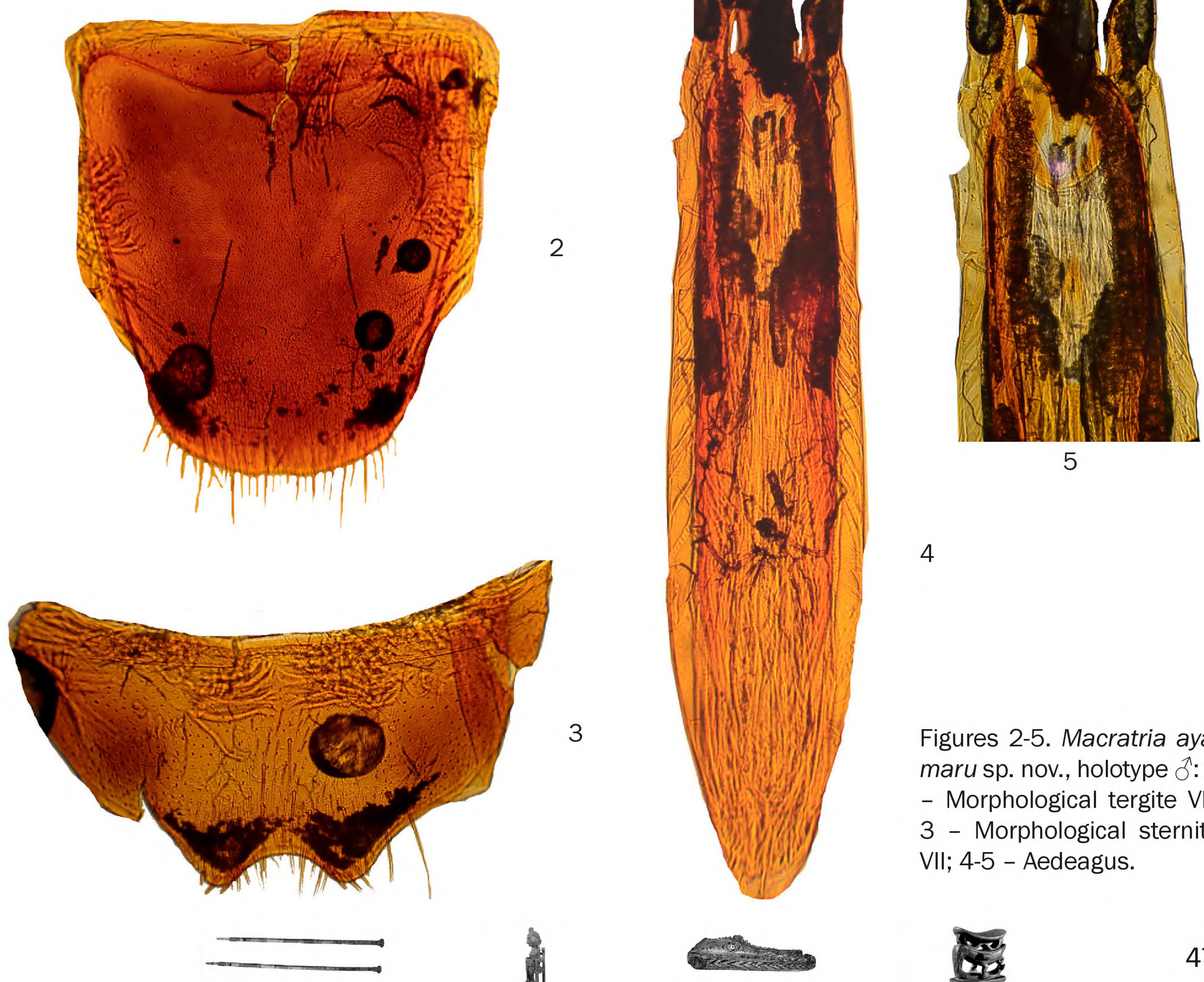


blue metallic lustre. Pro- and median legs yellow to yellowish brown, hind legs brown with metafemora paler. Underside brown to dark brown. Head rhomboid, smooth and shiny dorsally, with very large and prominent eyes covering 2/3 of head sides. Tempora converging toward narrow and broadly medially notched base. Frons broad, in both sexes distinctly broader than combined length of two basal antennomeres. Punctures minute and dense, intervening spaces mostly smaller than punctures. Underside of head smooth and shiny, with very delicate punctures. Pubescence yellowish, very delicate and sparse, subdecumbent. Antennae with three terminal antennomeres strongly enlarged, reaching base of elytra. Basal antennomere cylindrical. Third antennomere 1/3 longer than second antennomere. Antennomeres 3-7 elongate and not thickened distally. Antennomere 8 short and widened distally but longer than broad. Antennomeres 9-11 in male strongly enlarged and elongate (antennomeres 9-11 are longer than items 1-8 combined). Terminal antennomere 1/5 longer than penultimate one. Terminal maxillary palpomere cultriform. Pronotum broadly cylindrical, glossy and shiny, expanded laterally across the middle. Punctures stronger and larger than on head but very flat, intervening

spaces as wide as or smaller than punctures. Pubescence golden, long but sparse, appressed. Basal groove without dense whitish pubescence. Scutellum small, truncate apically. Elytra rather broad, slightly narrowed toward apices. Punctures large but flat, arranged into 6 poorly delimited rows on each elytron (by dorsal view). Punctures getting much more flat and more delicate in apical third. Pubescence yellowish, fine and long, rather dense, appressed, directed in part slightly obliquely. Hind wings fully developed. Legs stout, densely setose. Pro- and mesotarsi distinctly thickened in both sexes. Basal metatarsomere in males longer than combined length of metatarsomeres 2-4. Last visible ventrites are not extending beyond elytral apices. Male morphological tergite VII very broadly rounded apically (Fig. 2). Male morphological sternite VII with broad median excavation provided with two enlarged, scale-like setae on each side of the excavation (Fig. 3). Aedeagus with distally widened somewhat spatulate parameres (Figs 4-5).

Sexual dimorphism: The female is unknown.

Ecology: Specimens were sampled from low strata



Figures 2-5. *Macratria aymaru* sp. nov., holotype ♂: 2 – Morphological tergite VII; 3 – Morphological sternite VII; 4-5 – Aedeagus.

vegetation on the edge of a semidry lowland rainforest on limestone, during the very hot midday time. Differential diagnosis: Among its congeners this species is primarily distinctive due to the combination of the following characters: antennomeres 7-8 longer than broad and not flattened, elytral pubescence in part directed obliquely laterally, male morphological sternite VII with broad apical excavation provided with two scale-like setae on each side of median excavation.

Distribution: Southern lowlands of Doberai Peninsula, Indonesian New Guinea.

***Macratria berdnikovi* sp. nov.** (Figs 6-9, plate 97 figs 3-4, map 4: filled circle)

<http://zoobank.org/2D1EC0E4-670F-4736-BB4A-8D0B2B454B5B>

Holotype ♂ NME: INDONESIA E, North Moluccas, Halmahera SE, Patani W, between the jetty & Patani, 0°18'10"N, 128°39'38"E, 15-50 m, 10.VII.2013, secondary lowland rainforest, leg. D.Telnov.

Paratype 1♂ DTC: same label as in holotype.

Derivatio nominis: Patronymic. This species is named in honor of Dr. Sergejs Berdnikovs, Northwestern University (Chicago, U.S.A.), professor and my good friend.

Measurements: Holotype male, total body length 3.5 mm, maximum combined width across base of elytra 0.8 mm; head 0.75 mm long, across eyes 0.6 mm broad, pronotum 0.85 mm long, maximum width 0.55 mm, elytra 1.9 mm long, across base 0.8 mm wide.

Description: Head yellow on mouthparts, orange from clypeus to eye midflight, black in posterior half. Antennae yellow with three terminal antennomeres yellowish brown. Pronotum and elytra uniformly black. Front legs yellow, profemora with small triangular brown predistal spot and base of protibiae shortly brown, procoxae reddish. Median legs with reddish coxae, mesofemora yellow with distal third dark brown (leaving extreme apices narrowly yellow), mesotibiae black to black-brown but distally narrowly reddish, mesotarsi yellow. Hind legs inclusive coxae black, metafemora with extreme apices narrowly yellow, basal metatarsomere dark reddish brown, remaining metatarsomeres yellow. Underside of head and thorax reddish, abdomen dark brown to black. Head ovoid, smooth dorsally, with very large and strongly prominent eyes covering whole sides of head. Head base rounded, not notched. Frons narrow, in male narrower than combined length of two basal antennomeres. Punctures minute, rather dense, intervening spaces

generally larger than punctures. Underside of head smooth and shiny, minutely punctured. Pubescence yellowish, dense, appressed. Antennae slender, in male reaching basal third of elytra. Basal antennomere cylindrical. Third antennomere hardly longer than second antennomere. Antennomeres 3-8 elongate and slender, hardly thickened distally. Antennomeres 9-10 stouter but not longer than antennomeres 3-8. Terminal antennomere in male elongate, twice longer than the penultimate antennomere. Terminal maxillary palpomere cultriform. Pronotum cylindrical, flattened and shiny dorsally. Punctures large and dense but flat, intervening spaces microreticulate, smaller than punctures. Pubescence greyish to whitish, long and dense, appressed. Area adjacent to the basal groove with dense whitish pubescence. Scutellum small, truncate apically. Elytra shiny dorsally, laterally almost parallel. Dorsal surface densely and coarsely punctate in basal half but getting more delicate and flat in apical half. Pubescence greyish to yellowish, rather long and dense, appressed. Broad transverse band of white hairs in basal third, narrowly interrupted on suture. Hind wings fully developed. Legs stout, tibiae densely setose. Protibiae rather short and stout. Pro- and mesotarsi distinctly thickened in male. Spurs of metatibiae long and stout. Male basal metatarsomere longer than combined length of metatarsomeres 2-4. Apices of last visible ventrites not extending beyond elytral apices. Male morphological tergite VII broadly rounded apically and obtuse pointed medially (Fig. 6). Male morphological sternite VII short and broad, with very inconspicuous medioapical excavation (Fig. 7). Aedeagus with short and thin, apically slightly widened parameres (Figs 8-9).

Sexual dimorphism: The female is unknown.

Ecology: Sampled from low strata vegetation in a secondary lowland rainforest.

Differential diagnosis: This species is very conspicuous primarily due its colouration (thus *Macratria* are known as rather variable in body colouration) and structure of male genital organs and last ventrites.

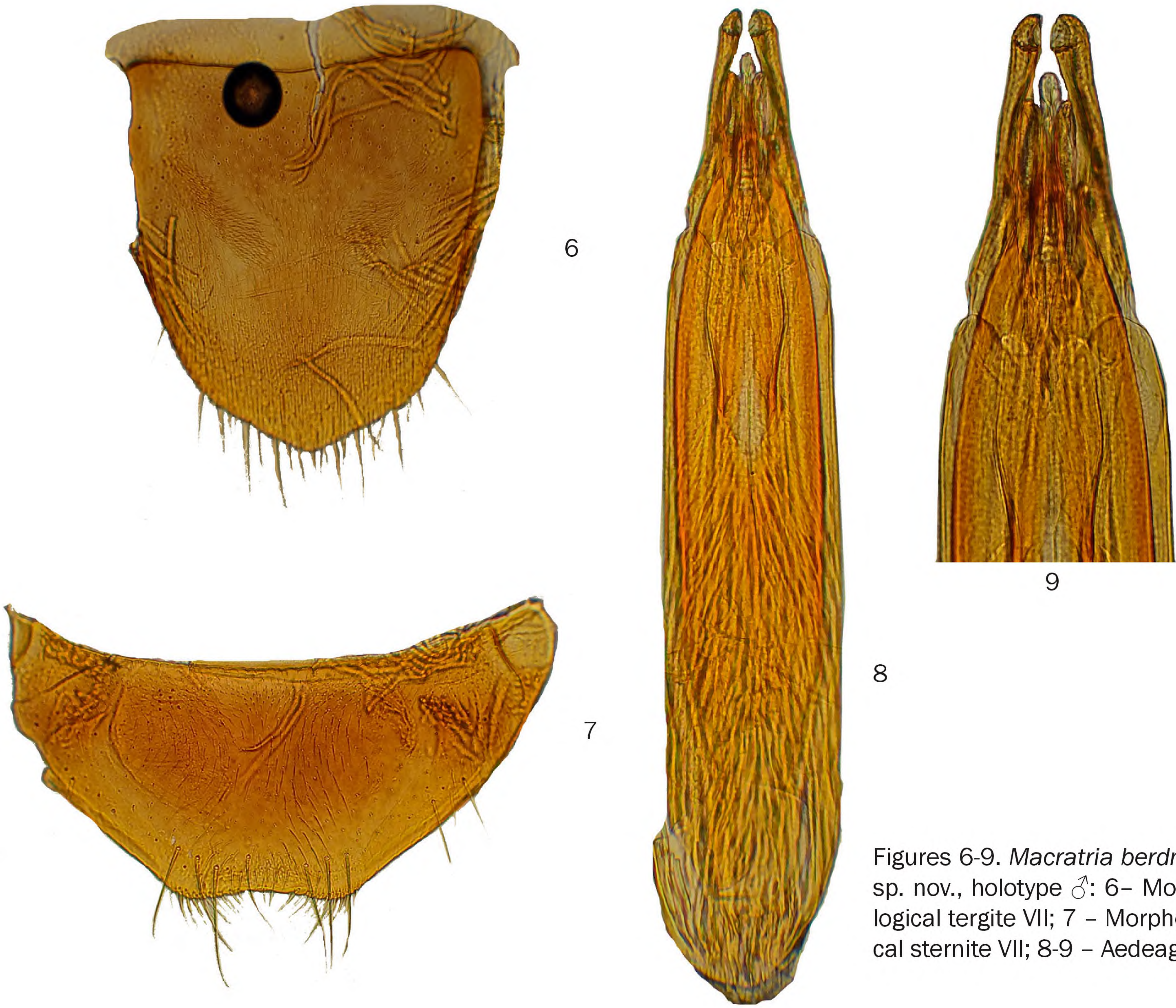
Distribution: Known from the SE arm of Halmahera Island, North Moluccas.

***Macratria citak* sp. nov.** (Figs 10-15, plate 97 figs 5-6, map 6: empty circle)

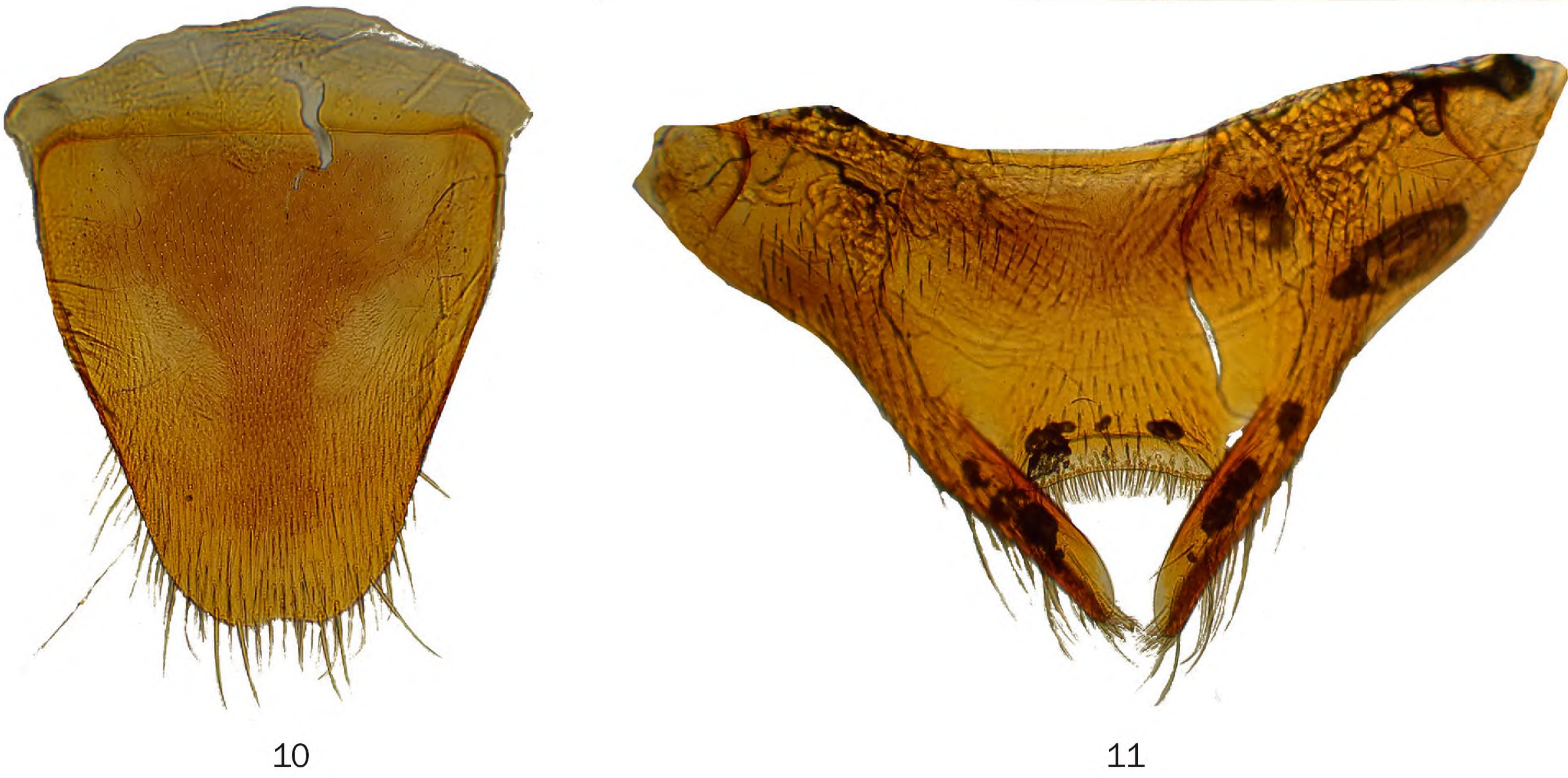
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Holotype ♂ NME: INDONESIA, Papua, North Asmat area, 5°20'39"S, 139°21'18"E, left bank of River Eilandan S of Siret and Brazza river junction (left river-





Figures 6-9. *Macratria berdnikovi* sp. nov., holotype ♂: 6– Morphological tergite VII; 7 – Morphological sternite VII; 8-9 – Aedeagus.



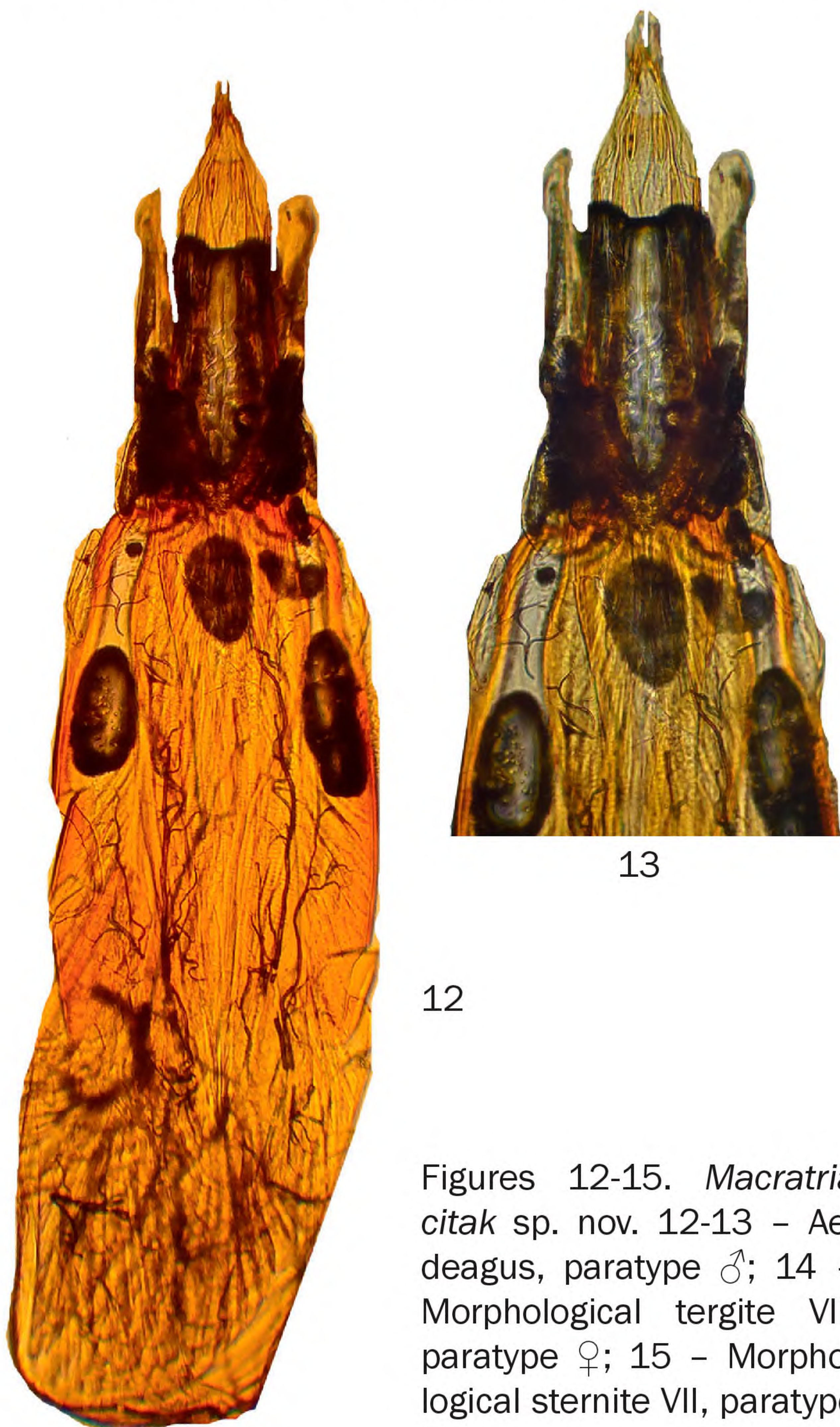
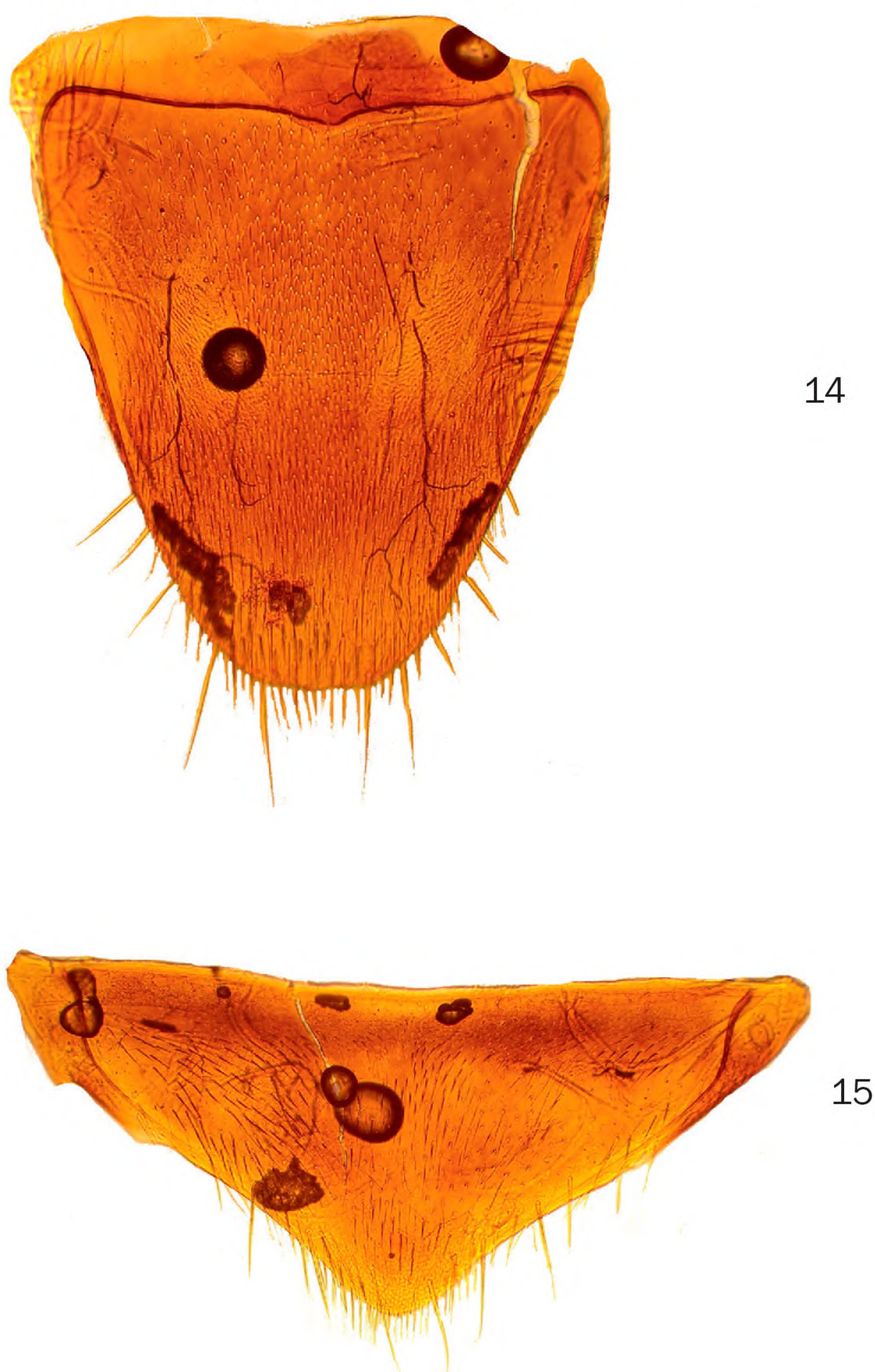
Figures 10-11. *Macratria citak* sp. nov., paratype ♂: 10– Morphological tergite VII; 11 – Morphological sternite VII.



bank), XII.2015, leg. L.Wagner.
Paratypes: 7♂ & 1♀ DTC: same label as in holotype.

This species belongs to the *M. gestroi* species-group (see Telnov 2011a for group definition).
Derivatio nominis: Named after Citak, local tribe and language at the area where this species was first collected. Noun in apposition, invariable.
Measurements: Holotype male, total body length 4.8 mm, maximum combined width across base of elytra 1.05 mm; head 0.9 mm long, across eyes 0.75 mm broad, pronotum 1.1 mm long, maximum width 0.7 mm, elytra 2.6 mm long, across base 1.05 mm wide. Paratype female, total body length 4.4 mm, maximum combined width across base of elytra 1.1 mm; head 0.8 mm long, across eyes 0.7 mm broad, pronotum 1.1 mm long, maximum width 0.7 mm, elytra 2.3 mm long, across base 1.1 mm wide.
Description and differential diagnosis: Dorsal body black with orange legs (all femora orange-brown in female paratype) with orange-brown coxae, yellow mouth parts and antenno-

meres 1-7; antennomeres 8-11 brown. Underside dark brown, abdomen reddish brown. This species is very similar with *Macratria gestroi* Pic, 1900 (Papuan Peninsula, E Papua New Guinea) and *M. pseudodensata* Telnov, 2012 (southern lowlands of New Guinea), but differs specifically in structure of male morphological tergite VII (pointed in *M. pseudodensata*, truncate in *M. gestroi*, broadly rounded and excavated medially in *M. citak* sp. nov (Fig. 10) and male morphological sternite VII (flattened / truncate between processes in *M. pseudodensata*, with a small median pubescent process in *M. gestroi*, with a broad pubescent process in *M. citak* sp. nov. (Fig 11). Male aedeagus as in Figs 12-13. Female morphological sternite VII pointed apically (Fig. 15), tergite VII - as in Fig. 14. Male terminal antennomere elongate, longer than combined length of 9-10 antennomeres.
Sexual dimorphism: Female with terminal antennomere comparatively shorter, as long as combined length of two preceding antennomeres.
Ecology: Specimens were observed on *Saccharum* sp. vegetation on riverside (plants growing in



Figures 12-15. *Macratria citak* sp. nov. 12-13 – Aedeagus, paratype ♂; 14 – Morphological tergite VII, paratype ♀; 15 – Morphological sternite VII, paratype ♀.



water) in the open sun at hot midday.

Distribution: Southern (Indonesian) New Guinea lowlands - hitherto known from North Asmat area.

***Macratria eparaksts* sp. nov.** (Figs 16-22, plate 98
figs 1-6, map 6: filled circles)

<http://zoobank.org/7712554F-3157-4D2A-B770-F639656BEB15>

Holotype ♂ NME: INDONESIA E, S New Guinea, Merauke 84 km NE, Sawaeoe vill. 4 km S, Marov riverbank (upper Merauke River), 8°02'36"S, 141°00'14"E, 18.IX.2015, 13-14 m, riverside vegetation, leg. D.Telnov. Paratypes 15 specimens: 2♂ DTC: same label as in holotype; 5 DTC & 2 NME: INDONESIA, Papua, Korowai area, Yaniruma env., 5°24'53"S, 139°49'01"E, 25.VI.2016, muddy riverside, on *Metroxylon sagu*, leg. L.Wagner; 4 DTC & 2 NME: INDONESIA, Papua, Korowai area, Senggo vill. env., 5°45'36"S, 139°32'52"E, 25.VI.2016, riverside vegetation, leg. L.Wagner.

This species belongs to the *M. gestroi* species-group (see Telnov 2011a for group definition).

Derivatio nominis: For the first time in biological science, the discovery of *Macratria eparaksts* sp. nov. was fixed on the photograph which was immediately (in the field) signed by the qualified electronic signature with timestamp provided by LVRTC, Latvia's only Trusted certification services provider. Satellite phone was used in the field in order to access LVRTC's on-line signing services. This species is therefore named after the Latvian electronic signature brand "eParaksts" (eSignature in English translation). Noun in apposition, invariable.

Measurements: Holotype male, total body length 4.3 mm, maximum combined width across base of elytra 0.9 mm; head 0.8 mm long, across eyes 0.7 mm broad, pronotum 0.95 mm long, maximum width 0.6 mm, elytra 2.35 mm long, across base 0.9 mm wide. Selected ♀♀ paratypic specimens from Yaniruma env.: Total body length 4.6 mm, maximum combined width across base of elytra 1 mm; head 0.9 mm long, across eyes 0.75 mm broad, pronotum 1.1 mm long, maximum width 0.7 mm, elytra 2.5 mm long, across base 1 mm wide; total body length 3.7 mm, maximum combined width across base of elytra 0.8 mm; head 0.7 mm long, across eyes 0.6 mm broad, pronotum 0.9 mm long, maximum width 0.55 mm, elytra 2 mm long, across base 0.8 mm wide.

Description: Dorsal body uniformly black, mouthparts yellowish brown. Antennae yellow basally with 5 terminal antennomeres black. Front legs yellow with coxae, profemora pale brown distally and protibiae - basally. Median legs inclusive coxae brown with mesofemora mainly yellow with exception of

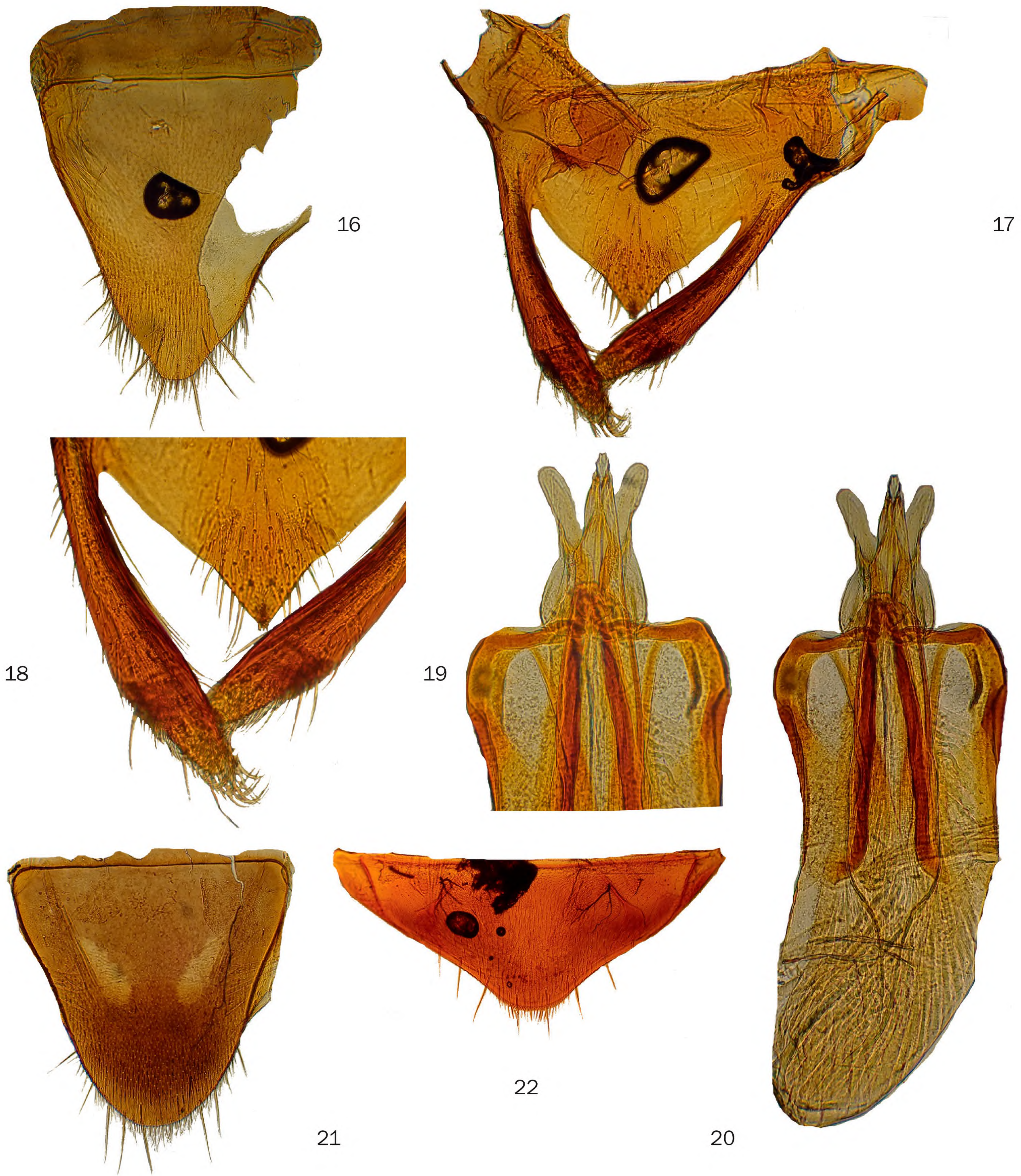
darker distal part. Hind legs black brown, metatarsi somewhat paler. Underside brown to black-brown. Head round, smooth and shiny dorsally, with very large and strongly prominent eyes covering whole sides of head. Head slightly converging posterior to eyes to narrower not notched base. Frons narrow, in male about as wide as combined length of two basal antennomeres. Punctures minute, rather dense, intervening spaces generally larger than punctures. Underside of head smooth and shiny, minutely punctured. Pubescence whitish, dense, appressed. Antennae in male reaching base of elytra. Basal antennomere cylindrical. Third antennomere hardly longer than second antennomere. Antennomeres 3-5 slender, hardly thickened distally. Antennomeres 6-10 stouter, broader and flattened dorso-ventrally. Terminal antennomere in male elongate, twice longer than the penultimate antennomere and as long as 9-10 antennomeres combined, in female slightly shorter than 9-10 antennomeres combined. Terminal maxillary palpomere shortly cultriform. Pronotum cylindrical, dorsally slightly convex and shiny. Punctures large and dense but flat, intervening spaces smooth, smaller than punctures. Anterior third of pronotum more delicate punctured than posterior 2/3. Pubescence yellowish to whitish, long and dense, appressed. Basal groove with dense white pubescence. Scutellum small, truncate apically. Elytra shiny dorsally, laterally slightly constricted toward apices. Dorsal surface finely and flat punctate. Pubescence yellowish, rather long and dense, appressed. Transverse band of white hairs in basal third, broadly interrupted on suture. Hind wings fully developed. Legs stout, tibiae densely setose. Protibiae stout. Metatibiae with a group of very long curved setae on premedian part of inner margin. Spurs of metatibiae long and stout. Male basal metatarsomere longer than combined length of metatarsomeres 2-4. Apices of last visible ventrites extending beyond elytral apices. Male morphological tergite VII narrowly pointed apically (Fig. 16), female morphological tergite VII broadly rounded apically (Fig. 21). Male morphological sternite VII with two long and robust antlers-like lateral processes with densely setose triangular median protrusion on inner margin of each process. Apex of the median protruding is tripartite (this character is visible under strong magnification). Apical margin is strongly protruding and pointed between processes (Figs 17-18), provided with 2-3 large, scale-like setae. Female morphological sternite VII with an obtuse flat medio-apical projection (Fig. 22). Aedeagus as in Figs 19-20.

Sexual dimorphism: Females have a shorter ter-



minal antennomere.
Ecology: This species was sampled from leaves of a lone standing tree on riverbank. Beetles sat on the upper side of leaves in the open sun (about 32°C at time of observation) and were very agile.
Differential diagnosis: This species is very peculiar among all congeners in the structure of the

male morphological sternite VII. This species is somewhat similar with *M. coniceps* Pic, 1901 of Aru Islands since several paratypes, especially from Senggo vill. env., have head constricted posterior to eyes. Female genitalia of *M. eparaksts* sp. nov. are identical to those in lectotype and paralectotype of *M. coniceps*. Since male is unknown for *M.*



Figures 16-22. *Macratiria eparaksts* sp. nov. 16-20 – Paratype ♂: 16 – Morphological tergite VII; 17 – Morphological sternite VII; 18 – Appendages and apical margin of male sternite VII; 19-20 – Aedeagus; 21-22 Paratype ♀: 21 – Morphological tergite VII; 22 – Morphological sternite VII.



coniceps male genitalia cannot yet be compared. Female pronotum is considerably less slender in female *M. eparaksts* sp. nov. than in *M. coniceps*. Further studies are needed to highlight this possible relationship.

Distribution: Southern (Indonesian) New Guinea lowlands.

***Macratria marind* sp. nov.** (Figs 23-28 & 44-45, plate 99 figs 1-3, map 5: rhomboid)

<http://zoobank.org/687FE9E9-EAAD-45A9-80E2-FC9046965CCF>

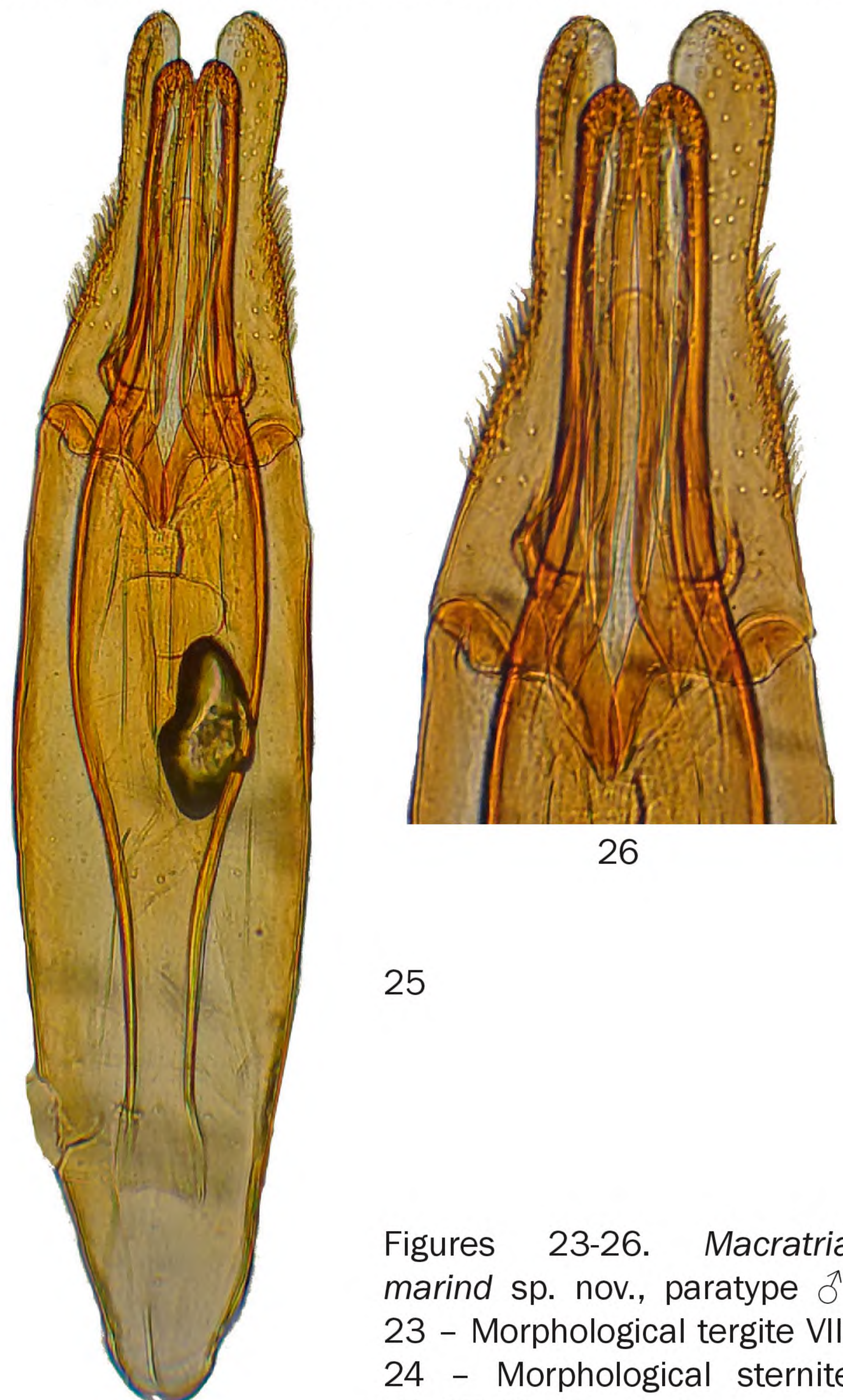
Holotype ♂ NME: INDONESIA E, S New Guinea, Merauke 24,5 km N, Salore vill env., Kumbe left riverbank, 8°16'26"S, 140°22'50"E, 17.IX.2015, 10 m, sago swamp & muddy riverbank, riverside vegetation, leg. D.Telnov.

Paratypes 21♂♀ DTC & 6 NME: same label as in holotype.

Derivatio nominis: Named in honour of the Marind tribe and language of southern New Guinea in the area this species was collected. Noun in apposition, invariable.

Measurements: Holotype male, total body length 3.55 mm, maximum combined width at base of elytra 0.85 mm; head (neck excluded) 0.65 mm long, across eyes 0.6 mm broad, pronotum 0.8 mm long, maximum width 0.6 mm, elytra 2.1 mm long, across base 0.85 wide. Paratype female: total body length 3.65 mm, maximum combined width across middle of elytra 0.9 mm; head (neck excluded) 0.7 mm long, across eyes 0.65 mm broad, pronotum 0.85 mm long, maximum width 0.6 mm, elytra 2.1 mm long, across base 0.9 mm wide.

Description: Dorsum reddish brown, brown or black-brown, head usually somewhat paler. Mouthparts, palpi, legs and antennae yellow (last with at three-four terminal antennomeres slightly darker). Hind legs completely dark in certain paratypes. Venter uniformly reddish to blackish brown, last visible tergite and sternite slightly paler. Head circular with round, extremely large and strongly prominent rather coarsely faceted eyes occupying almost the whole sides of head. Tempora broadly rounded with a head base, base without median notch. Frons narrow, in male narrower than combined length of two



Figures 23-26. *Macratria marind* sp. nov., paratype ♂: 23 – Morphological tergite VII; 24 – Morphological sternite VII; 25-26 – Aedeagus.



27



28

Figures 27-28. *Macratia marind* sp. nov., paratype ♀: 27 – Morphological tergite VII; 28 – Morphological sternite VII.

basal antennomeres. Punctures minute and flat, spacious, intervening spaces larger than punctures. At least one paratype specimen with head densely and rather coarsely punctured with small intervening spaces. Underside of head much more spacious punctured, smooth. Pubescence yellowish, fine and dense. Antennae long, reaching over base of elytra. Basal antennomere cylindrical. Third antennomere slightly longer than second antennomere. Antennomeres 3-7 long and slender, hardly thickened distally. 9-10 wider and thickened distally (in females stronger than in males) but hardly shortened. Terminal antennomere elongate, 2x longer than (in males) to equal in length (in females) with 9-10 antennomeres together. Terminal maxillary palpomere cultriform. Pronotum cylindrical, dorsally slightly flattened, without lustre. Punctures coarse and dense, intervening spaces smaller than punctures. Pubescence yellowish, long and dense, appressed. Basal groove without whitish pubescence. Scutellum short and broad, truncate apically. Elytra elongate, without lustre, laterally hardly narrowed toward apices (almost parallel). Punctures on each elytron arranged into 5-6 regular rows (in dorsal view); each of these punctures provided with a long appressed seta. Intervening spaces microreticulate. Pubescence yellowish, long and very dense, appressed and almost completely hiding the dorsal surface of elytra. Hind wings fully developed. Legs long and slender. Protarsi distinctly thickened in both sexes. Basal metatarsomere in both sexes longer than combined length of metatarsomeres 2-4. Last visible ventrites hardly extending beyond elytral apices. Male morphological tergite VII truncate apically (Fig. 23), female - truncate with short angular median projection (Fig. 27). Male morphological sternite VII with two spike-like projections on apical margin, truncate between

them (Fig. 24), of female broadly rounded apically (Fig. 28). Aedeagus with midsized, apically rounded and medially pubescent parameres (Figs 25-26). Sexual dimorphism: Females have shorter terminal antennomere, shorter basal metatarsomere, broader frons (as broad as or broader than combined length of two basal antennomeres) and elytra.

Variability: Total body length up to 4.5 mm in certain paratypes. Some paratypes much darker blackish-brown coloured.

Differential diagnosis: This species appears to most closely resemble *Macratia riparia* Telnov, 2012 (Raja Ampat Islands: Misool) but the last visible male sternite lacks the excavation between the projections (excavated in *M. riparia*), the parameres are curved with apices pointed (parameres not curved, apices rounded in *M. riparia*), the last visible female tergite bears an angulate median projection (rounded in *M. riparia*), the male terminal antennomere is comparatively shorter than that of *M. riparia*, and the colouration is darker in certain specimens.

Ecology: Based on material so far seen, this species exhibits a strong riparian preference. Specimens were collected from green leaves of *Cryptocoryne* sp. growing in profusion on muddy riverbanks of lowland rivers (Figs 44-45). Beetles were stationary or ant-like in movement in sunny weather on leaves of *Cryptocoryne* sp. just near the waterline. When disturbed, they flew actively around the plants, resembling a cloud of mosquitoes, and also moved to the underside of near growing Sago palm (*Metroxylon sagu*) leaves where they remained motionless until the disturbance ceased. This species inhabits the very same habitat and demonstrates very similar behaviour as *Macratia riparia* Telnov, 2012 on Misool Island.



Distribution: Hitherto known from the extreme South of Indonesian New Guinea, Southern lowlands in surroundings of Merauke.

***Macratria obiensis* sp. nov.** (Figs 29-34, plate 99
figs 4-7, map 4: rhomboids)

<http://zoobank.org/88A3DA89-F597-46E9-AF32-5976FBA78A3B>

Holotype ♂ NME: INDONESIA E, North Moluccas, Obi Islands, Obira Is., S part, Wayaloar vill. W, Wayaloar River, 1°42'42"S, 127°37'01"E, 17.XII.2013, riverine lowland rainforest, leg. L.Wagner.

Paratypes 11 specimens: 5 DTC: same label as in holotype; 3 NME & 3 DTC: INDONESIA E, North Moluccas, Obi Islands, Obira Is., W part, Kawasi vill. 5-6 km SE, North of Akelamo river mouth, 1°35'51"S, 127°25'04"E, 15.XII.2013, gardens, secondary lowland rainforest & swamp, leg. L.Wagner.

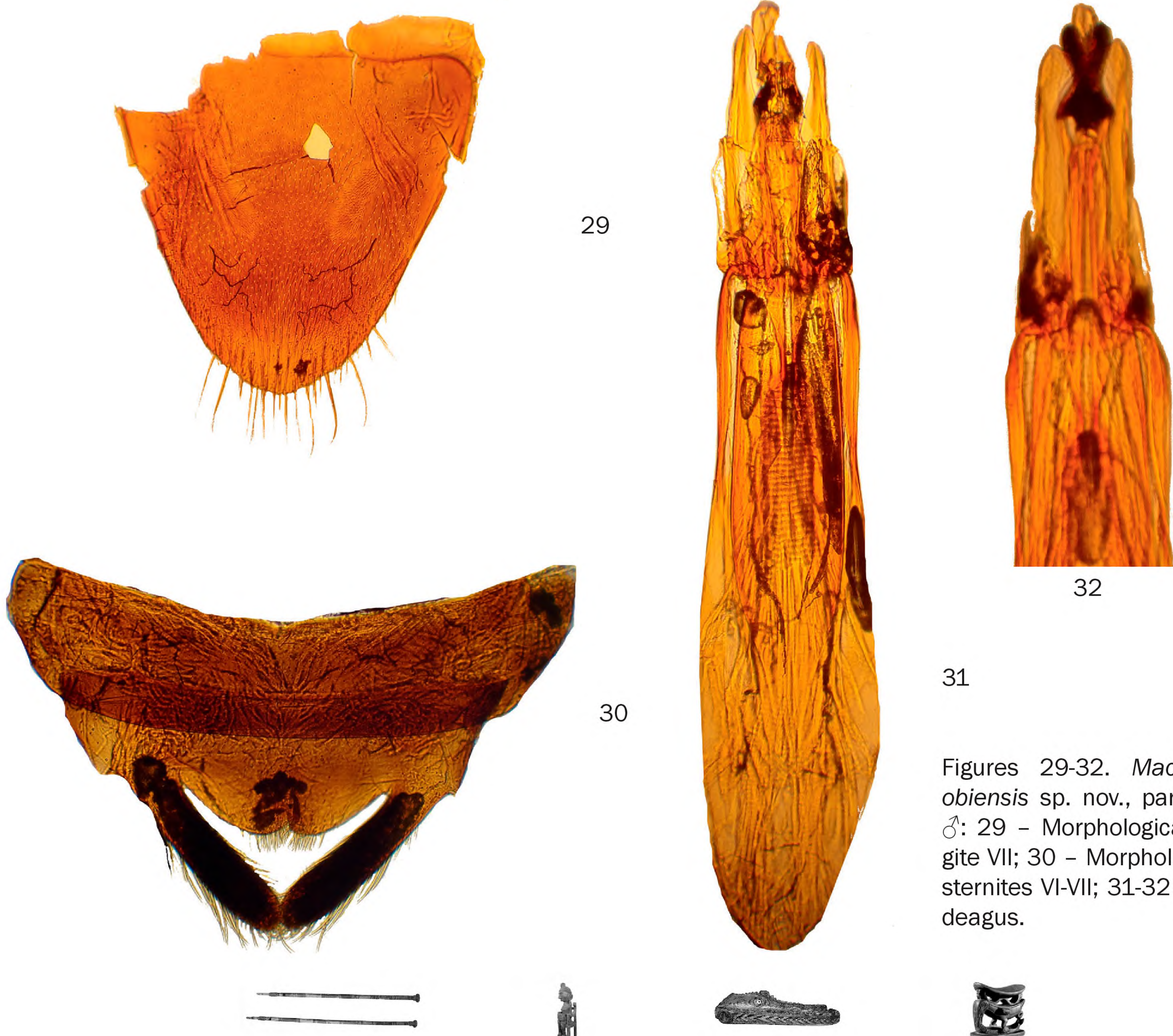
This species belongs to the *M. gestroi* species-group (see Telnov 2011a for group definition).

Derivatio nominis: Toponymic. This species is named after its area of origin, the Obi Islands of North Moluccas.

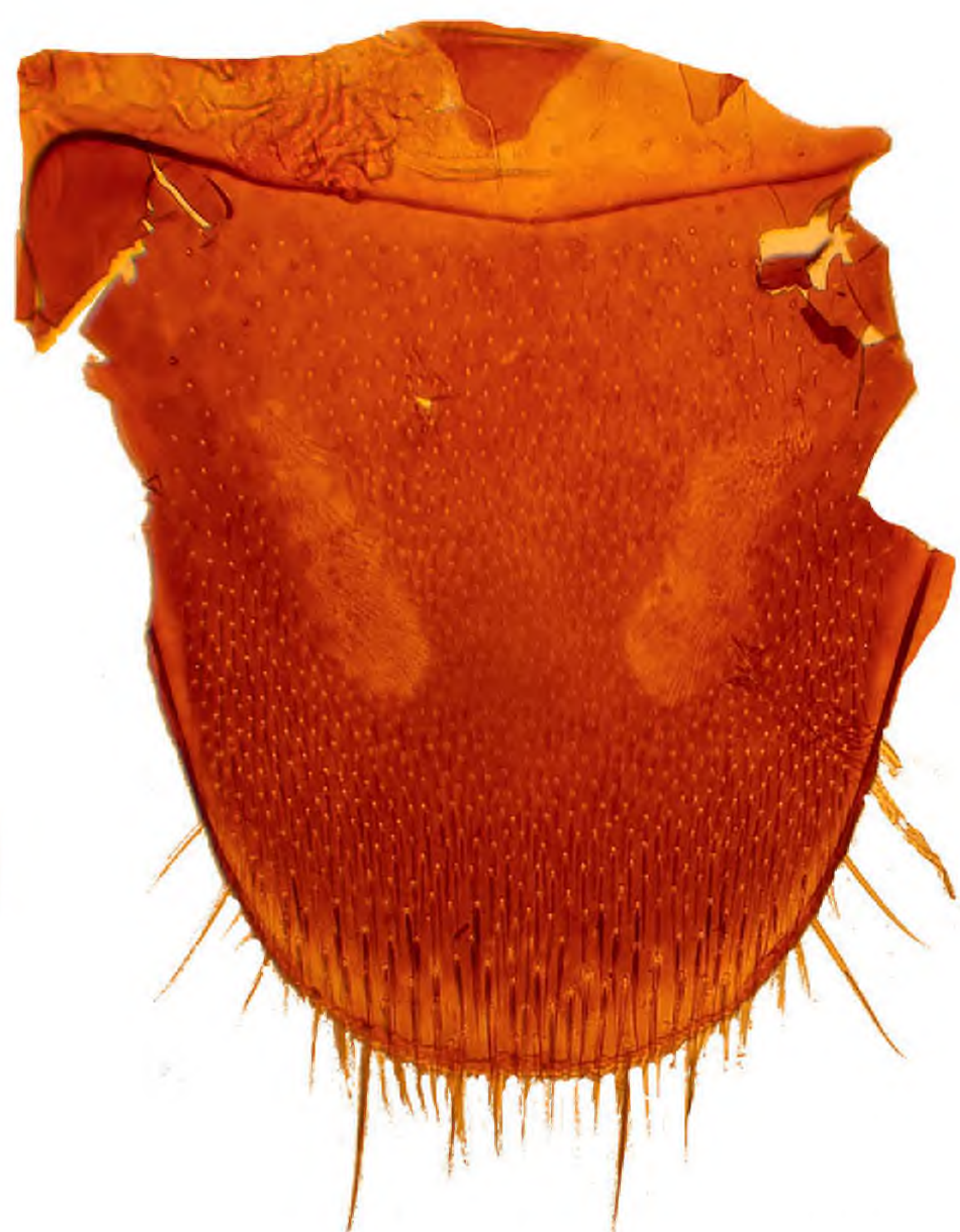
Measurements: Holotype male, total body

length 4 mm, maximum combined width at base of elytra 0.9 mm; head 0.7 mm long, across eyes 0.6 mm broad, pronotum 0.9 mm long, maximum width 0.55 mm, elytra 2.3 mm long, across base 0.9 wide. Paratype female: total body length 4.6 mm, maximum combined width at base of elytra 1.0 mm; head 0.8 mm long, across eyes 0.75 mm broad, pronotum 1 mm long, maximum width 0.7 mm, elytra 2.6 mm long, across base 1.05 wide.

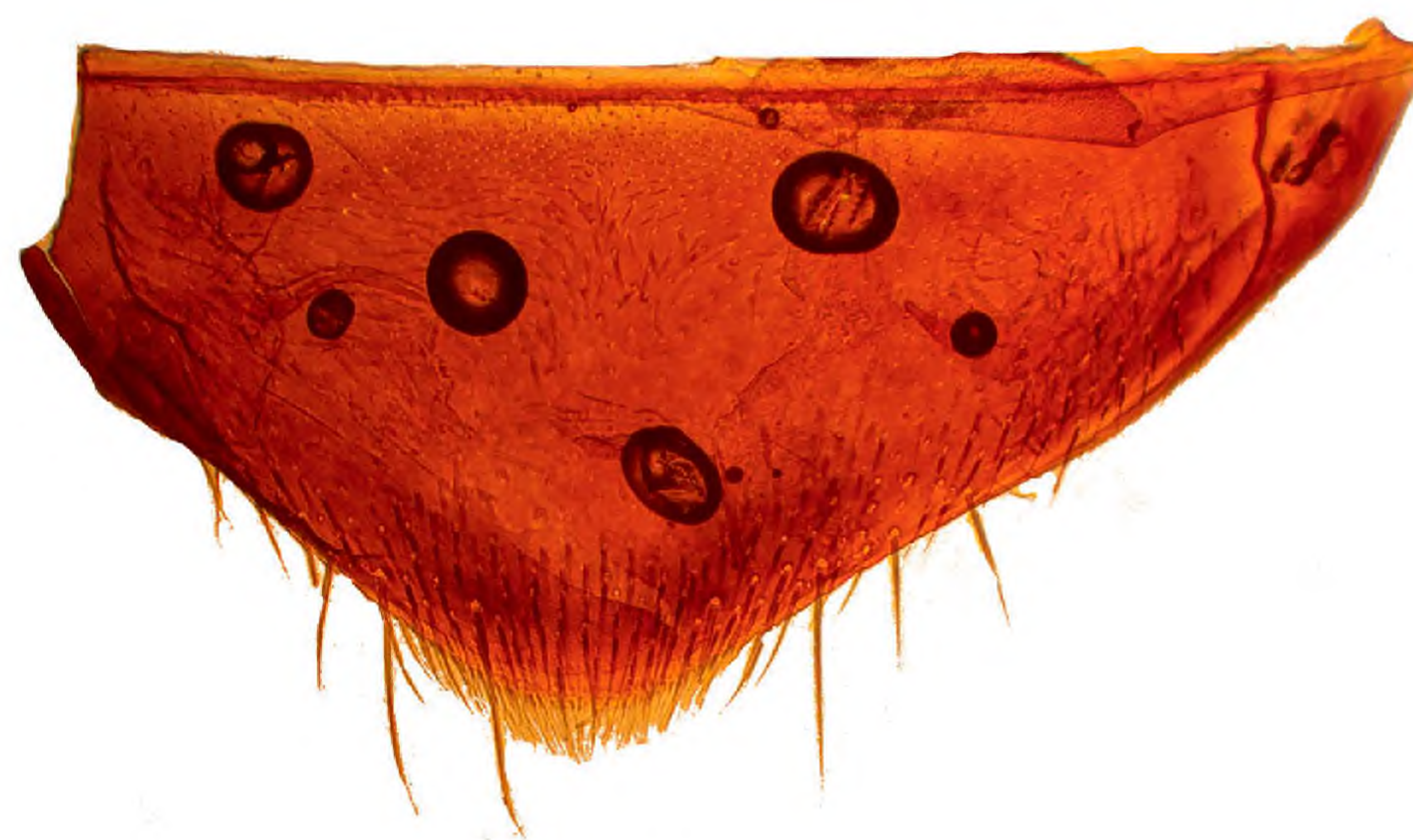
Description and differential diagnosis: Externally similar to *Macratria capreolus* Telnov, 2011 (North Moluccas), *Macratria coniceps* Champion, 1916 (Aru Islands), *M. laszlowagneri* Telnov, 2011 (Central Moluccas), *Macratria misoolensis* Telnov, 2011 (Raja Ampat Islands), *Macratria pamelaschmidtii* Telnov, 2011 (Solomon Islands), *Macratria pseudodensata* Telnov, 2012 (S New Guinea: Asmat area), and *Macratria subguttata* Pascoe, 1860 (North Moluccas), but differs by the combination of the following characters: apical third of elytra on disc with a poorly defined zone of whitish pubescence surrounded by pale yellow main pubescence, male morphological sternite VII with two robust, densely and long pubescent antlers-like lateral pro-



Figures 29-32. *Macratria obiensis* sp. nov., paratype ♂: 29 – Morphological tergite VII; 30 – Morphological sternites VI-VII; 31-32 – Aedeagus.



33



34

Figures 33-34. *Macratiria obiensis* sp. nov., paratype ♀: 33 – Morphological tergite VII; 34 – Morphological sternite VII.

cesses. Apical margin between processes is slightly concave (Fig. 30), male morphological tergite VII triangular and broadly pointed apically, terminal antennomere hardly 2x longer than the penultimate one in both sexes, metatibiae without modifications in both sexes, eyes very large and occupying almost whole tempora in both sexes, head base broadly rounded, aedeagus as in Figs 31-32. Female morphological tergite VII and sternite VII as in Figs 33-34 respectively; sternite with rounded and densely punctured median protruding. Legs generally black brown. Male morphological tergite VII as in Fig. 29. Sexual dimorphism: Females are generally more robust with a comparatively broader pronotum and elytra.

Ecology: Specimens of this species were sampled during the hot daytime from leaves of low strata vegetation (up to 2 m high) in disturbed lowland rainforests and gardens.

Distribution: Obira Island of Obi group, southernmost North Moluccas.

***Macratiria patani* sp. nov.** (Figs 35-39, plate 100 figs 1-2, map 4: filled circle)

<http://zoobank.org/939C45B0-32F8-45B7-98FD-23BE9DFC72E3>

Holotype ♂ NME: INDONESIA E, North Moluccas, Halmahera SE, Patani W, between the jetty & Patani, 0°18'10"N, 128°39'38"E, 15-50 m, secondary lowland rainforest, 10.VII.2013, leg. D.Telnov.

Paratypes 5♂ DTC: same label as in holotype.

Derivatio nominis: Named after Patani, the local language of the SE arm of Halmahera where this species was sampled. Noun in apposition, invariable.

Measurements: Holotype male, total body length 4.55 mm, maximum combined width across base of elytra 1 mm; head 0.85 mm long, across eyes

0.7 mm broad, pronotum 1.15 mm long, maximum width 0.7 mm, elytra 2.45 mm long, across base 1 mm wide.

Description: Head reddish-orange, yellow on mouthparts. Antennae yellow with three terminal antennomeres slightly darker. Pronotum and elytra uniformly dark brown, the first one generally darker. Front legs yellow, profemora with small triangular brown predistal spot and base of protibiae shortly brown, procoxae red. Median legs with dark red coxae, mesofemora broadly yellow medially with basal and distal parts reddish-brown (leaving extreme apices narrowly yellow), mesotibiae pale brown, mesotarsi yellow. Hind legs black brown, base of metafoemora reddish brown and extreme apices narrowly yellowish, basal metatarsomere brown, remaining metatarsomeres yellow. Underside reddish-brown. Head ovoid, opaque or hardly shiny dorsally, with extremely large and strongly prominent eyes covering whole sides of head. Head slightly converging posterior to eyes to narrower and broadly notched base. Frons very narrow, in male strongly narrower than combined length of two basal antennomeres. Punctures rather large and dense, intervening spaces smaller than punctures. Underside of head smooth and shiny, minutely punctured. Pubescence yellowish, sparse, appressed. Antennae slender but rather short, in male hardly reaching base of pronotum. Basal antennomere cylindrical. Third antennomere longer than second antennomere. Antennomeres 3-8 very elongate and slender, hardly thickened distally. Antennomeres 9-10 stouter but hardly longer than antennomeres 3-8. Terminal antennomere in male elongate, twice longer than the penultimate antennomere. Terminal maxillary palpomere axeform. Pronotum cylindrical, flattened and opaque dorsally. Punctures large, dense and coarse, intervening spaces microreticu-



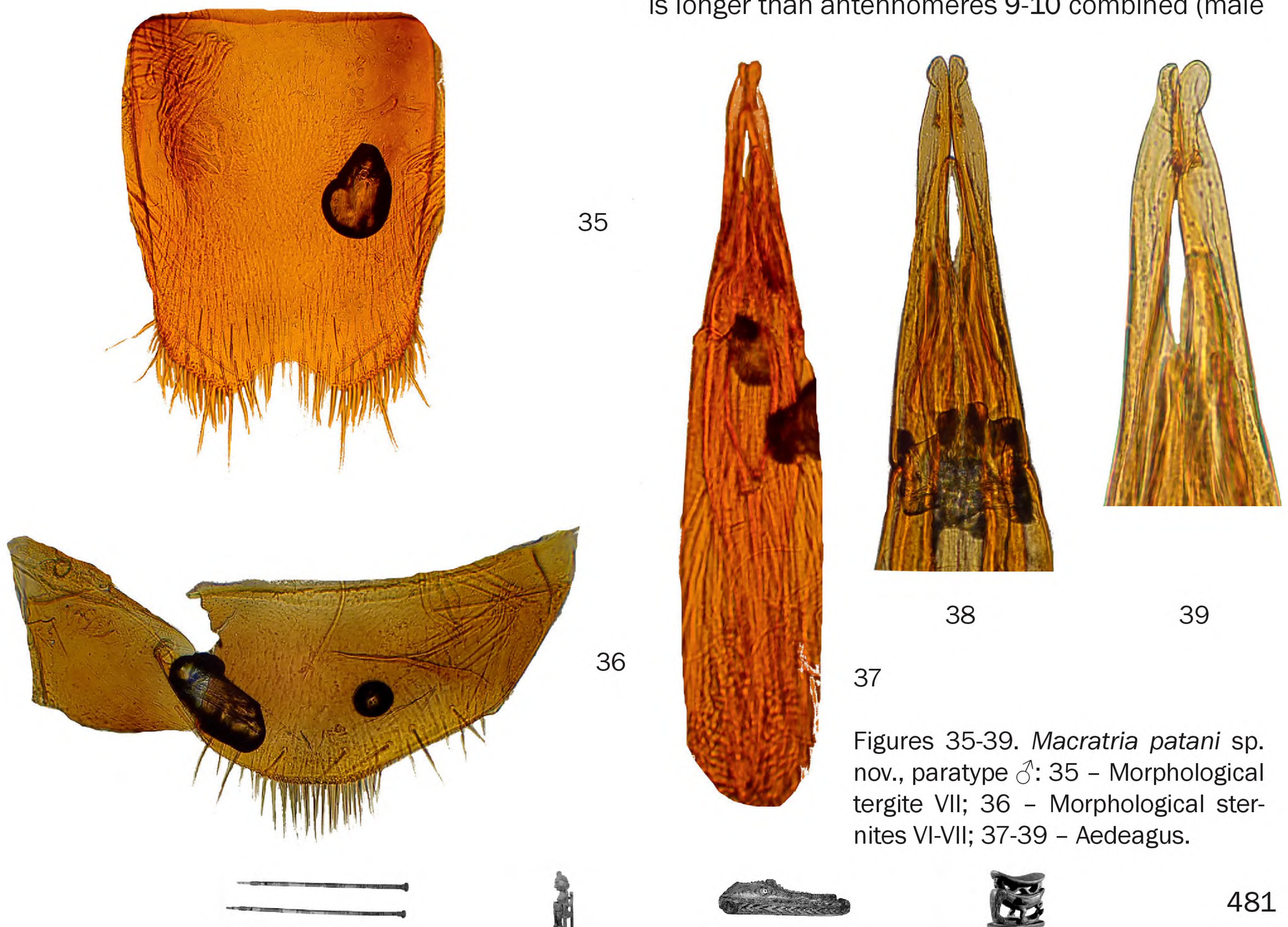
late, much smaller than punctures. Pubescence greyish, long and dense, appressed. Basal groove without dense whitish pubescence. Scutellum small, truncate apically. Elytra opaque to hardly shiny dorsally, laterally almost parallel. Dorsal surface delicate punctate, punctures are larger and deeper in basal half but getting very delicate and flat in apical half. Pubescence greyish to yellowish, rather long and dense, appressed. Somewhat longer and appressed setae are arranged in 6-7 rows on each elytron. Hind wings fully developed. Legs stout, tibiae densely setose. Protibiae rather short and stout. Pro- and mesotarsi distinctly thickened in male. Spurs of metatibiae long and stout. Male basal metatarsomere longer than combined length of metatarsomeres 2-4. Apices of last visible ventrites hardly extending beyond elytral apices. Male morphological tergite VII broadly excavated medio-apically (Fig. 35). Male morphological sternite VII short and broad, broadly rounded apically (Fig. 36). Aedeagus with long and thin parameres (Figs 37-39).

Sexual dimorphism: The female is unknown.

Ecology: Sampled from low strata vegetation in secondary lowland rainforest.

Differential diagnosis: This species is peculiar among all Moluccan congeners due to its colouration (thus *Macratria* are known as rather variable in

body colouration) and structure of male genital organs and last ventrites. Several allopatric congeners have an apically excavated male morphological tergite VII and some of these species also have a red-coloured head and pale appendages. These species differ from *M. patani* in the following characters: *Macratria fruhstorferi* Pic, 1942 (Sulawesi) has the parameres provided with a preapical denticle (parameres not denticulate in *M. patani*), *M. fulvipes fulvipes* Pascoe, 1860 (Sulawesi) has curved parameres (parameres straight in *M. patani*) and male morphological tergite VII is vaguely excavated apically (tergite VII is strongly excavated in *M. patani*), *M. grisescens* Telnov, 2011 (Sula Islands, North Moluccas) has distally broad parameres (parameres not or hardly widened distally in *M. patani*) and the male morphological tergite VII is vaguely excavated apically, *M. maxbarclayi* Telnov, 2011 (Sulawesi) has the male terminal antennomere more than twice as long as the penultimate one (about twice so long in *M. patani*) and the pronotum is less coarsely punctured (pronotum coarsely punctured in *M. patani*), *M. obscuripes* Pic, 1912 (Sulawesi) has the pronotal punctures large but flat, less coarse and the male morphological tergite VII is vaguely excavated apically, *M. sanguiceps* Telnov, 2011 (Sulawesi) has the head base truncate (head base rounded and notched apically in *M. patani*) and the male terminal antennomere is longer than antennomeres 9-10 combined (male



Figures 35-39. *Macratria patani* sp. nov., paratype ♂: 35 – Morphological tergite VII; 36 – Morphological sternites VI-VII; 37-39 – Aedeagus.

terminal antennomere maximum as long as antennomeres 9 & 10 in *M. patani*), *M. sulaensis* Telnov, 2011 (Sula Islands, North Moluccas) is generally paler brown, has the male morphological sternite VII obtuse and with a short, median protrusion (male morphological sternite VII different in *M. patani*) and the male morphological tergite VII is vaguely excavated apically, *M. testaceicornis* Pic, 1901 (Sulawesi) has generally dark coloured legs (front and median legs distinctly bicoloured in *M. patani*), has fore-body finely punctured and shiny (punctures coarser on fore-body in *M. patani*) and has a transverse band of white setae in the basal third of elytra (no such band in *M. patani* sp. nov.). Distribution: SE arm of Halmahera Island, North Moluccas.

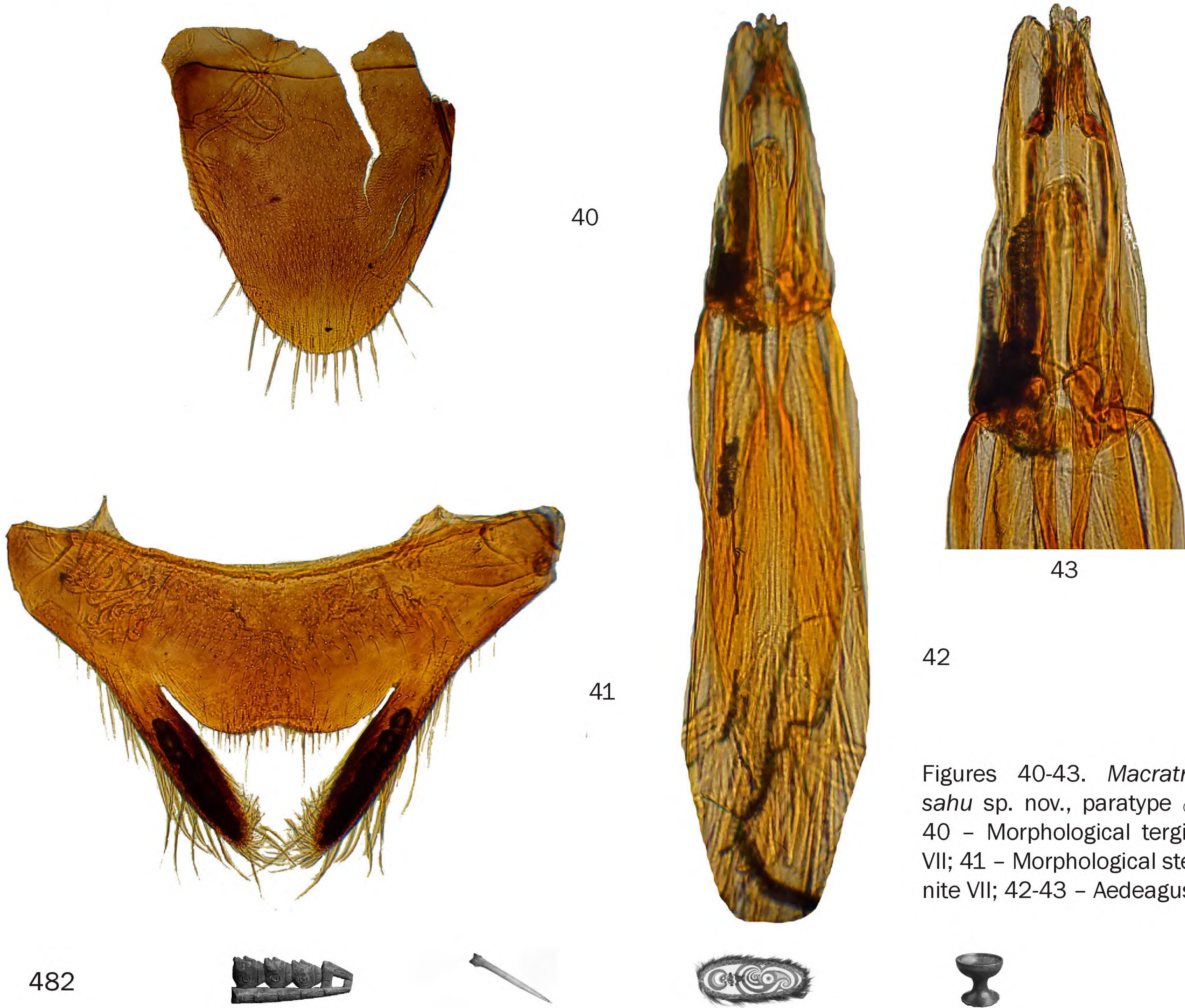
***Macratria sahu* sp. nov.** (Figs 40-43, plate 100 figs 3-4, map 4: empty circle)
<http://zoobank.org/749D7770-C08A-4028-8BCF-F4D8051B847D>
Holotype ♂ NME: INDONESIA E, North Moluccas, Halmahera NW, River Alce Diri near Jailolo, 01°06'28"N, 127°28'49"E, 15-17 m, 16.VII.2013, lowland river, leg. L.Wagner.

Paratype 5♂ DTC & 2♂ NME: same label as in holotype.

This species belongs to the *M. gestroi* species-group (see Telnov 2011a for group definition). Derivatio nominis: This species is named after Sahu, a local tribe and language in surroundings of Jailolo, NW Halmahera. Noun in apposition, invariable.

Measurements: Holotype male, total body length 4.8 mm, maximum combined width across base of elytra 1.05 mm; head 0.9 mm long, across eyes 0.75 mm broad, pronotum 1.1 mm long, maximum width 0.7 mm, elytra 2.6 mm long, across base 1.05 mm wide.

Description and differential diagnosis: Dorsal body black with black-brown legs (tibiae paler yellow-brown), yellow mouthparts (terminal maxillary palpomere brown and antennomeres 1-8 yellow, 9-11 brown. Underside black-brown. Elytra in basal third with transverse band of white hairs (broadly interrupted on suture, not reaching lateral margins of elytra) and with elongate poorly defined preapical spot of white hairs on each elytron.



Figures 40-43. *Macratria sahu* sp. nov., paratype ♂: 40 – Morphological tergite VII; 41 – Morphological sternite VII; 42-43 – Aedeagus.

This species is very similar to other species of *gestroi* group but is specifically different in male metatibiae being simple (without modifications and / or long setation) and male morphological sternite VII being rather flat medio-apically between the processes (Fig. 41). Male morphological tergite VII as in Fig. 40. Male aedeagus as in Figs 42-43. Male terminal antennomere elongate, as long as combined length of 9-10 antennomeres.

Sexual dimorphism: The female is unknown.

Ecology: Specimens were collected from riverside vegetation.

Distribution: North-Western Halmahera, North Moluccas.

***Macratria* sp.**

Material 2♀ DTC: INDONESIA, Papua, Korowai area, Yaniruma env., 5°24'53"S, 139°49'01"E, 25.VI.2016, muddy riverside, on *Metroxylon sagu*, leg. L.Wagner.

Note: This is obviously another yet undescribed species that appears to be morphologically closely related to *Macratria brazzaensis* Telnov, 2012 (Southern New Guinea lowlands). Since only female specimens are currently available, this species is not yet being described.

Distribution: Southern New Guinea lowlands.

Notes on biogeography of *Macratria* Newman, 1838 in the Papuan Region and Wallacea

Macratria is worldwide in distribution with over 300 described species (Telnov 2011a, 2012). New Guinea and adjacent insular systems is perhaps the most complex region in the world with regard to an extremely complex and not well understood geological history (Gressitt 1984; Polhemus 2007). Also the biogeography of the Papuan Region is very complex and its biota is partly derived from different large adjacent Australian and Oriental biogeographic realms. The complex geological history of the area resulted in a wide spectrum of available geological structures (e.g. montane ranges, peninsulas, islands and insular groups) and habitats with different grades of isolation, inhabited by high numbers of endemics of various taxonomic ranks (e.g. species / genus / tribe). The combination of these aforementioned factors makes the Papuan Region extremely attractive for evolutionary and biogeography-related kind of research.

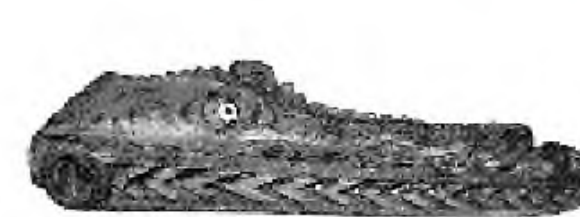
Several authors analyzed the distribution of vertebrates, particularly birds (Beehler 2007) and freshwater fishes (Polhemus & Allen 2007) of New

Guinea, defining areas of endemism for terrestrial and freshwater vertebrates. But for most insect groups this vast area remains insufficiently studied and their distribution patterns are poorly understood with some exceptions (for example, Tmesisternini (Coleoptera: Cerambycidae) - Gressitt 1984, freshwater invertebrates - Polhemus & Allen 2007, cicadas - Duffels & de Boer 2007). Generally, identified areas of invertebrate endemism correlate well with such areas defined for vertebrates. Since all of the Papuan Anthicidae were systematically revised by Telnov (2007a & b, 2009, 2011a & b, 2012, 2014) this group considered one of best studied among Papuan insects.

Peculiarities in distribution and endemism patterns of *Macratria* are of particular interest primarily because of vast recent material available for the study. The present list of the Papuan and Wallacean *Macratria* (120 species and subspecies; Telnov 2012) is herewith supplemented with 8 more species. Among the vpresently known 128 *Macratria* species, 126 are considered endemic to the Indo-Australian transition zone. Data on species richness and regional endemism of *Macratria* in the Indo-Australian transition zone (inclusive Papuan Region and Wallacea) were recently summarized and assessed by Telnov (2011a) and soon supplemented by Telnov (2012). The recent discoveries presented in this paper slightly change this pattern (Table 1).

Throughout most lowland areas *Macratria* are known as good and active flyers and inhabit riparian ecosystems with good distribution potential among water courses. For example, 10 *Macratria* species now recorded from North Moluccas of which *M. capreolus* Telnov, 2011 known to inhabit the whole archipelago with minor exceptions (Map 2) and *M. subguttata* Pascoe, 1860 known from most of the area except for Obi Islands (Map 3). On the other hand, some other species seem limited in distribution and localized in certain geographical parts of the archipelago, like *M. obiensis* sp. nov. in Obi Islands and *M. berdnikovi* sp.nov. and *M. patani* sp. nov. in the SE arm of Halmahera.

The vast Southern lowlands of New Guinea are inhabited by several species with large distribution areas. For example, *M. grekei* Telnov, 2011 and *M. ronaldi* Telnov, 2011 are hypothetically distributed all over southern lowlands with some gaps reflecting present level of knowledge and available material (consider maps 1-5). Bird's Neck with its dramatic anticlines and therefore very different habitats is a (hypothetical) western distribution boundary for these lowlands species.



But even in very similar lowland microhabitats in different parts of the region different species may occur. Telnov (2012) reported *M. riparia* Telnov, 2012 from lowlands of Misool and Waigeo islands, Raja Ampat. On Misool this species is found in mass on leaves of *Cryptocoryne ciliata* growing in mud directly on waterline and in low water of lowland rivers. In southern New Guinea, surroundings of Merauke, another species *M. marind* sp. nov. has been found in the very same habitat on leaves of *Cryptocoryne* sp. (see description of this species and ecological notes above).

On the other hand, montane areas are inhabited by low mobility species (based on field observations, see behaviour notes for *M. hatamensis* Telnov, 2011) and *M. rotundiceps* Telnov, 2011 with rather limited distributions (Map 1) and (theoretically) low dispersal ability.

The following provisional Anthicidae areas of endemism are herewith proposed in the Papuan

Region and Wallacea based on available information:

- 1. Sulawesi;
- 2. North Moluccas;
- 3. Doberai, Bomberai and Onin peninsulas except montane areas of the Arfak and Tamarau;
- 4. Arfak Mountains and Tamarau Mountains of Doberai Peninsula;
- 5. South New Guinea from Bird’s Neck Isthmus in the West towards the Papuan Peninsula in the East;
- 6. Central Cordillera of New Guinea;
- 7. Solomon Islands.

Therefore New Guinea is subdivided into at least four main areas of endemism with other areas represented by large islands (Sulawesi) or insular groups (North Moluccas, Solomon Islands). Insufficient data are available in order to define Central Moluccas, North New Guinea and Bismarck Archipelago as an Anthicidae endemism area.

Table 1. Species richness and endemism of *Macratrria* Newman in the Papuan Region and Wallacea.

Island group or region	Island	Species richness	Proportion of endemic species
Aru Islands	no data	1	100% endemic
	Wokam	1	100% endemic
Lesser Sunda Islands	Lombok	1	0% endemic
	Sumbawa	1	100% endemic
Lesser Sunda (region)		2	50% endemic
Moluccan Islands (excl. Aru)	Bacan	3	0% endemic
	Buru	1	0% endemic
	Halmahera	8	60% endemic
	Morotai	1	0% endemic
	Obi	2	50% endemic
	Seram & Lease Islands	1	0% endemic
	Ternate	1	0% endemic
	Tidore	1	0% endemic
North Moluccas (region)		10	100% endemic
Central Moluccas (region)		1	100% endemic
New Guinea & Cenderawasih Bay Islands		89	99% endemic
	Papua New Guinea	40	98% endemic
	Indonesian Papua (excl. Cenderawasih Bay Islands)	47	99% endemic
	Biak & Numfoor	1	100% endemic
	Yapen	4	75% endemic
Sula Islands	Mangole	2	100% endemic
Sulawesi	Sulawesi, Buton & Peleng	15	87% endemic
Sulawesi (region North)		9	89% endemic
Sulawesi (region Central)		5	80% endemic
Sulawesi (region South)		4	75% endemic
Sulawesi (without precise data)		1	100% endemic
Raja Ampat Islands	Misool	3	100% endemic
	Salawati	1	0% endemic
	Waigeo	4	25% endemic
Raja Ampat (region)		6	67% endemic
Solomon Islands	Guadalcanal & Tulaghi	4	75% endemic
	Malaita	1	0% endemic
	New Georgia	1	0% endemic
	Makira (= San Cristobal) & Uki	1	0% endemic
	Santa Isabel	1	0% endemic
Solomon Islands (region)		5	100% endemic



Acknowledgements

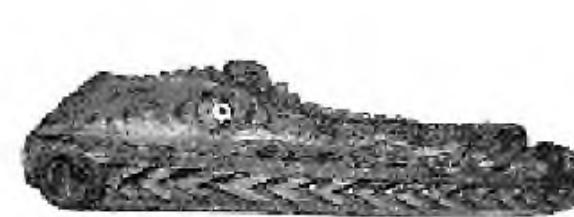
Dr. Barbara Gravendeel (Biodiversiteit Hogeschool Leiden, the Netherlands) is thanked for examination and identification of Moluccan plant species for the manuscript. My friendly and very competent accompanier Laszlo Wagner (Budapest, Hungary) is herewith thanked for joining me during the 2013 and 2015 expeditions to North Moluccas and New Guinea, as also for friendly assistance with sampling specimens in hardly accessible Citak, Koro-wai and North Asmat areas of New Guinea and on Obi Islands.

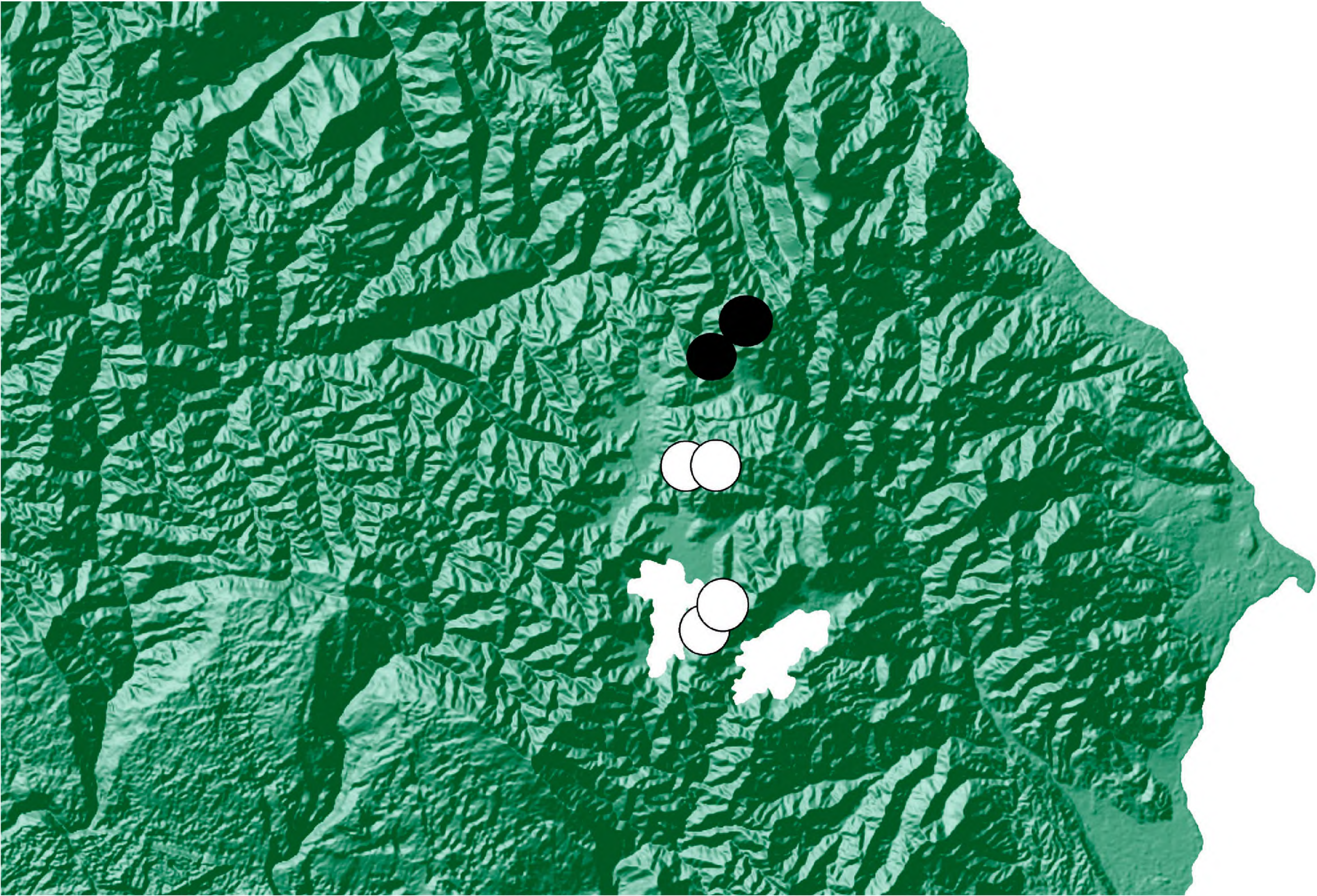
I am grateful to Dr. Daniel K. Young (University of Wisconsin, Madison, U.S.A.) for English proof reading and general comments on the manuscript.

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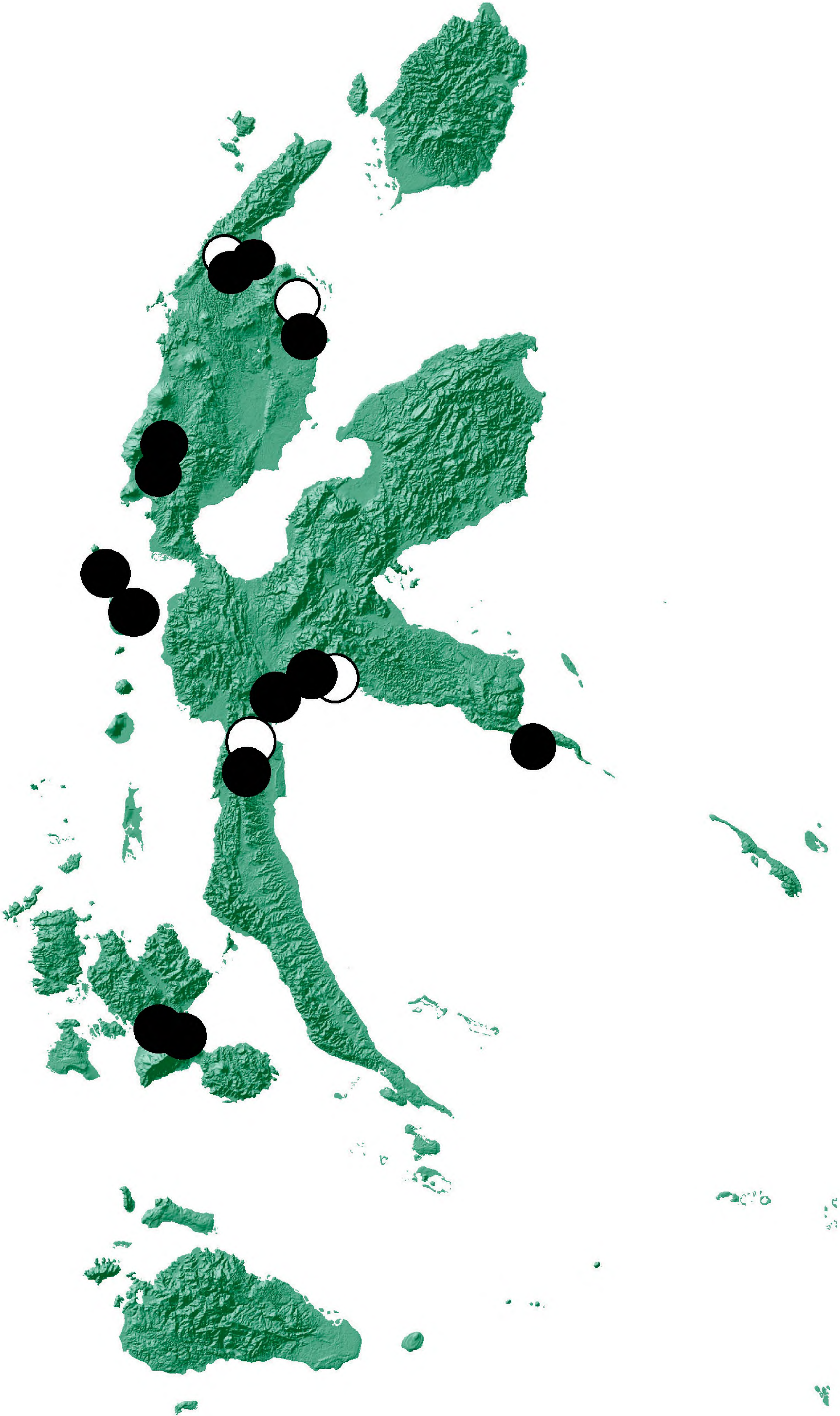
Map 1. Distribution of *Macratria hatamensis* Telnov, 2011 (empty circles) and *M. rotundiceps* Telnov, 2011 (filled circles) in Arfak Mountains, Doberai Peninsula of New Guinea (Anggi Lakes are white on the map).





Map 2. North Moluccas: distribution of *Macratria capreolus* Telnov, 2011.





Map 3. North Moluccas: distribution of *Macratria pygmaea halmaherica* Telnov, 2011 (empty circles) and *M. subguttata* Pascoe, 1860 (filled circles).





Map 4. North Moluccas: distribution of *Macratria sahu* sp. nov. (empty circle), *M. berdnikovi* sp. nov. and *M. patani* sp. nov. (filled circle), and *M. obiensis* sp. nov. (rhomboids).





Map 5. New Guinea: distribution of *Macratria ronaldi* Telnov, 2011 (empty circles), *M. grekei* Telnov, 2011 (filled circles), and *M. marind* sp. nov. (rhomboid).



Map 6. New Guinea: distribution of *Macratria citak* sp. nov. (empty circle), *M. eparaksts* sp. nov. (filled circles), and *M. ayamaru* sp. nov. (rhomboid).





Figures 44-45. Habitat of *Macratria marind* sp. nov. 44 – River Kumbe at locus typicus, southern New Guinea, Merauke surroundings (consider muddy banks and Sago Palm stands); 45 – *Cryptocoryne* sp. plants on which *M. marind* sp. nov. specimens were observed in large number (photos: D. Telnov).



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Figures 46-47. Habitat of *Macratria hatamensis* Telnov, 2011 in Arfak Mountains. 56 – Moist mossy mid-montane rainforest around Uper village, ~2000 m (consider low strata vegetation from which specimens were sampled); 47 – Open and semidry forest remnants on watershed between Gigi and Gita lakes (Anggi Lakes), ~2250 m (photos: D. Telnov).





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Figures 48-49. Habitat of *Macratria* species. 48 – *Saccharum* sp. stands along River Kokopola in NE Halmahera - habitat of *M. capreolus* Telnov, 2011, *M. pygmaea halmaherica* Telnov, 2011, and *M. subguttata* Pascoe, 1860; 49 – Microhabitat (young tree) of *M. rotundiceps* Telnov, 2011 in Arfak Mountains, moist mossy mid-montane rainforest (photos: D. Telnov).



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Figures 50-52. Habitat of *Macratrria* species. 50 – Taro plant from which *M. subguttata* Pascoe, 1860 specimens were sampled in NE Halmahera, near Lake Makete; 51 – Roadside semidry vegetation from which *M. pygmaea halmaherica* Telnov, 2011 and *M. subguttata* were sampled in Central Halmahera; 52 – Taro plant in Sabale caldera (Tidore Island) from which *M. subguttata* specimens were sampled (photos: D. Telnov).



Plate 97

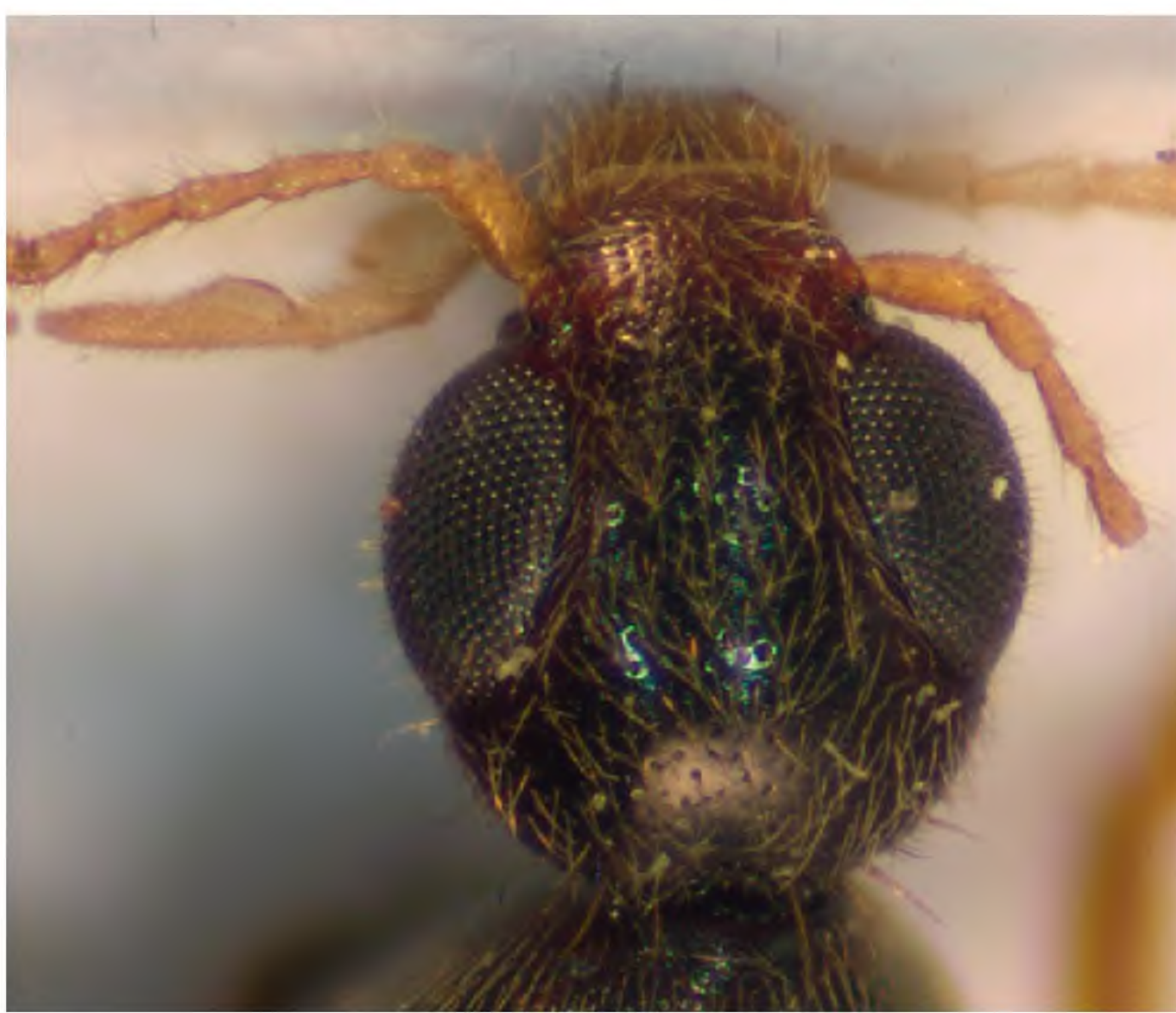
TELNOV, D.: New records and new species of Macratriinae from the Papuan Region (Coleoptera: Anthicidae), 2



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2



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Figures 1-6. New species of *Macratria* Newman, 1838 from Wallacea and New Guinea, dorsal view. 1 – *M. ayamaru* sp. nov., habitus, paratype ♂; 2 – ditto, head; 3 – *M. berdnikovi* sp. nov., habitus, holotype ♂; 4 – ditto, forebody; 5 – *M. citak* sp. nov., habitus, holotype ♂; 6 – ditto, forebody.

Plate 98

TELNOV, D.: New records and new species of Macratriinae from the Papuan Region (Coleoptera: Anthicidae), 2



1



3



5



2



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6

Figures 1-6. *Macratria eparaksts* sp. nov., dorsal view. 1 – Habitus, holotype ♂; 2 – ditto, forebody; 3 – Habitus, paratype ♂ from Senggo vill. env.; 4 – ditto, forebody; 5 – Habitus, paratype ♀ from Senggo vill. env.; 6 – ditto, forebody. Consider constricted head base of paratypes and flattened male 8-11 antennomeres.

Plate 99

TELNOV, D.: New records and new species of Macratriinae from the Papuan Region (Coleoptera: Anthicidae), 2



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Figures 1-7. New species of *Macratria* Newman, 1838 from Wallacea and New Guinea, dorsal view. 1 – *M. marind* sp. nov., habitus, holotype ♂; 2 – ditto, forebody; 3 – ditto, paratype ♀; 4 – *M. obiensis* sp. nov., habitus, paratype ♂; 5 – ditto, forebody; 6 – ditto, forebody of another paratype ♂; 7 – ditto, paratype ♀.

Plate 100

TELNOV, D.: New records and new species of Macratriinae from the Papuan Region (Coleoptera: Anthicidae), 2



1



3



2



4

Figures 1-4. New species of *Macratria* Newman, 1838 from Wallacea, dorsal view. 1 – *M. patani* sp. nov., habitus, holotype ♂; 2 – ditto, forebody; 3 – *M. sahu* sp. nov., habitus, paratype ♂; 4 – ditto, forebody.